

IOWA WILDLIFE ACTION PLAN

APPENDIX 1 - APPENDIX 21

APPENDIX 1. The IWAP - A Plan to Plan

Planning Schedule

The target date for a final review draft of a State Comprehensive Wildlife Plan for Iowa is June 1, 2005. Meeting this deadline will allow for adequate review and approval by the Director and the Natural Resource Commission prior to the September 20, 2005 deadline. Developing a more detailed planning schedule will be one of the first tasks of the steering committee in coordination with the plan author.

Plan Contributors

Plan Director – Richard Bishop – Iowa DNR

Responsibilities

- 1) Participate in committee meetings
- 2) Review all drafts of the plan
- 3) Approve all press releases and plan marketing plans
- 4) Review and communicate progress to Division Administrator, Director and NRC commissioners

Plan Coordinator – Terry Little, Iowa DNR

Responsibilities

- 1) Assemble Steering Committee
- 2) Participate in all committees
- 3) Identify and contract with a meeting facilitator
- 4) Identify and contract with plan author
- 5) Coordinate review and editing of all drafts of the plan
- 6) Coordinate all press releases and plan marketing
- 7) Report progress, problems and other developments to DNR administrators

Steering Committee Chair – Doug Harr, Iowa DNR

Responsibilities

- 1) Convene and coordinate all steering committee meetings
- 2) Keep steering members and sub-committees focused, on task and on schedule
- 3) Consult with coordinator and committee members to solve problems
- 4) Plan, schedule and coordinate advisory committee meetings

Steering Committee

Members – Key representatives from Iowa's conservation professionals

- 1) Dale Garner (DNR):
 - a. 2003-04: Coordination with Federal plans (PPJV, etc.)
 - b. 2004-05: plan Director
- 2) Kim Bogenschutz (DNR) – Aquatics (fish & invertebrates)

- 3) Dr. Erv Klaas (Iowa State University, retired) – Academia, GAP, Terrestrial invertebrates
- 4) Dr. James Dinsmore (Iowa State University retired) - Birds
- 5) Daryl Howell (DNR) – Threatened & endangered animals and plants, small mammals
- 6) Rick Zarwell (Audubon) – Birds, NGOs
- 7) Bruce Ehresman (DNR) – Birds, wildlife diversity programs
- 8) Marlene Ehresman (Iowa Natural Heritage Foundation) – Habitats and landscapes
- 9) Dave DeGeus (The Nature Conservancy) – NGOs, EarthTech, Inc.) – Herps
- 10) Angi Hanson (DNR) – Wildlife management, private lands programs
- 11) Don Brazelton (Iowa Association of County Conservation Boards) – CCB issues, funding, legislative liaison
- 12) Todd Bishop (DNR) – Geographic Information Systems support
- 13) Barb Gigar (IDNR) - Education, Recreation

Responsibilities

- 1) Develop a “Plan to Plan”
 - a. Finalize a planning schedule
 - b. Identify Advisory Committee members
 - c. Give Advisory Committee direction and guidelines
 - i. Be strategic - Begin with the end in mind - Be bold, but realistic, 50 year horizon, 10 year focus?
- 2) Develop a meeting format for Advisory Committee meetings
 - a. “Status conference” – bring all advisory committee to same level of understanding of resource status
 - b. Professional meeting facilitator – someone with wildlife conservation background
 - c. Schedule for meetings – Number, timing, topics to cover
- 3) Assign preparatory tasks to committee members
 - a. Identify species and habitat experts to provide information
 - b. Develop teams for specific tasks
 - c. Prepare species and habitat status reports for Advisory Committee
- 4) Develop plan drafts
 - a. Review Advisory Committee recommendations and develop draft vision, goals, strategic objective statement and priorities
 - b. Work with plan coordinator and author to develop a draft plan outline
 - c. Review all drafts from author before going to wider review
 - d. Present draft plan to advisory committee for review, clarification and improvement

- e. Prepare final draft of plan for DNR and NRC review and approval

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Advisory Committee – Broad representation from the conservation community

Members – representatives from:

- 1) Iowa North American Bird Conservation Initiative (NABCI) committee
- 2) Resource Enhancement and Protection (REAP) coalition
- 3) DNR Wildlife Management
- 4) DNR Wildlife Research
- 5) DNR Forestry
- 6) DNR Fisheries
- 7) DNR Conservation Officers
- 8) Iowa Association of Naturalists (IAN)
- 9) Iowa Conservation Education Council (ICEC)
- 10) Iowa Natural. History Federation
- 11) Natural Resource and Conservation Service (NRCS) Resource Conservation and Development (RC&D), Soil and Water Conservation Districts (SCWD)
- 12) Iowa Farm Bureau Federation
- 13) U.S. Congressional Aides
- 14) Governor's office
- 15) Natural Resource Commission commissioners
- 16) Iowa Herpetological Society
- 17) Iowa Sierra Club
- 18) Iowa Defenders of Wildlife
- 19) Others as identified by steering committee

Responsibilities

- 1) Review all status reports and papers
- 2) Recommend a vision for wildlife in Iowa
- 3) Recommend elements of a strategic vision
- 4) Recommend strategic goals and objectives
- 5) Recommend priorities for species and plant communities for action
- 6) Recommend strategic programs – what, where, how much

Plan Author (contractor)

Name: James Zohrer - E Resources Group

Responsibilities

- 1) Consult with the steering committee and IDNR Wildlife Diversity Program personnel to develop and update a working outline for the planning process so that all participants can stay apprised of progress and deadlines.
- 2) Meet with the IDNR's key project personnel, the steering committee or other appropriate staff at regular intervals, to review progress and update planning needs.
- 3) Work with the steering committee to identify work teams and products that will provide the author with information.

- 4) Review existing legislation, IDNR rules and other applicable regulations.
- 5) Working with planning teams, review existing databases and sources of information including, but not limited to, IDNR species management records or plans, Iowa GAP, GIS, heritage records, IDNR and other agencies' wildlife recovery plans, U.S. Fish and Wildlife Service Plans, and information from other state and federal agencies in Iowa having an interest in wildlife resource conservation such as DOT, DALS, USACOE, NPS, etc.,
- 6) Review comprehensive plans of other states, agencies or partners for examples of considerations to include.
- 7) Develop a "status document" that summarizes information known on the status of wildlife species and their habitats in Iowa.
- 8) Working with the steering committee, identify stakeholders and partners, and arrange for public input meetings at which comments and suggestions are recorded.
- 9) Using the status information and suggestions from the advisory committee, work with the steering committee to identify and prioritize species in greatest need of conservation and conservation practices to benefit them.
- 10) Write an initial draft Plan for review and comment by the steering committee, advisory committee, IDNR and the public, and for evaluation for compliance with federal requirements.
- 11) Prepare and submit a final draft of the Plan incorporating comments as recommended by the steering committee to IDNR for final approval by Natural Resource Commission, key partners and the U.S. Fish and Wildlife Service by project completion date of May 31, 2005.

Milestones (Tentative)

October 2003	Finalize steering committee membership. Develop a planning outline and schedule. Develop tentative steering committee meeting schedule.
January 2004	Identify work team leaders and tasks. Identify work team members.
March 2004	Review work team final products. Begin assembling and writing status report. Identify advisory committee members. Arrange for advisory committee time and place. Arrange for advisory committee meeting facilitator Develop advisory committee meeting format.
May 2004	Complete draft status report and distribute to steering committee and DNR for review and comment.

June 2004	Finalize draft status report and distribute to advisory committee.
July 2004	Advisory committee meeting to develop species and habitat priorities, a vision statement and major strategic objectives.
November 2004	Review advisory committee meeting products. Develop draft vision, goals and strategic objective statements. DNR review of plan to date.
February 2005	Advisory committee meeting to develop conservation actions that will implement strategies and determine conservation priorities. Steering committee review of conservation actions and priorities. Final decision on plan actions and contents. Begin writing first draft of final plan.
March 2005	First draft of plan to steering committee for review
May 2005	First draft finalized and sent for review and comment to the advisory committee, the public and U.S. Fish and Wildlife Service.
June 2005	Comments incorporated and final draft completed.

APPENDIX 2. State Advisory Group Meeting Summary

2-1. Attendees at the IWAP Advisory Group meeting.

Name - Last	Name- First	Affiliation	Title	Address
Anderson-Cruz	Jennifer	Natural Resources Conservation Service	Biologist	Des Moines, IA
Andrews	Ron	Iowa DNR Wildlife	Furbearer Specialist & Wildlife Diversity Program	Clear Lake, IA
Bishop	Richard	Iowa DNR Wildlife	ex-Wildlife Bureau Chief	Des Moines, IA
Bogenschutz	Kim	Iowa DNR Fisheries	Aquatic Nuisance Species Coordinator	Boone, IA
Bonneau	Don	Iowa DNR Fisheries	Fisheries Research Supervisor	Moines, IA
Brandrup	Mike	Iowa DNR Cons & Rec.	Division Administrator	Des Moines, IA
Brown	Larry	Ruffed Grouse Society	Representative	Radcliffe IA
Bruce	Angi	Iowa DNR Wildlife	District Wildlife Supervisor	Lewis, IA
Burk	John	National Wild Turkey Federation	Biologist	Fulton, MO 65251
Cancilla	Jodeane	MacBride Raptor Center		Cedar Rapids, IA
Christiansen	Scott	Prairie Edge Sustainable Forestry Cooperative		Edgewood, IA
Clark	Jane	Sierra Club	Chair	Des Moines, IA
Conover	Marion	Iowa DNR Fisheries	Fisheries Bureau Chief	Des Moines, IA
Deaver	Steve	Linn County Conservation Bd.	Resource Technician	Marion, IA
DeGeus	Dave	The Nature Conservancy	Director of Conservation Programs	Des Moines, IA
Dinsmore	James	Iowa Audubon	Representative	Ames, IA
Dolan	Robert	Iowa DNR Wildlife	District Wildlife Supervisor	Manchester, IA
Downing	John	Iowa State University	Professor	Ames, IA
Ehresman	Marlene	IA Natural Heritage Foundation	Program Planning Associate	Des Moines, IA
Ehresman	Bruce	Iowa DNR Wildlife	Wildlife Diversity Program Biologist	Boone, IA
Farrar	Eugenia	EEOB Iowa State University	Professor	Ames, IA
Flynn	Chris	Iowa DNR	Conservation Officer	Birmingham, IA
Ford-Shivvers	Diane	Iowa DNR Cons & Rec.	Asst. Div. Administrator	Des Moines, IA
Francisco	Kim	Natural Resources Commission	Chair	Lucas, IA

Name - Last	Name- First	Affiliation	Title	Address
Fritzell	Peter	Iowa DNR Wildlife	Assistant Biometrician	Boone, IA
Garner	Dale	Iowa DNR Wildlife	Wildlife Bureau Chief	Des Moines, IA
Gengerke	Tom	Iowa DNR Fisheries	District Fisheries Supervisor	Spirit Lake, IA
Gilbertson	Nancy	US Fish & Wildlife Service	Biologist	Prairie City, IA
Gilliam	Jay	Iowa Ornithologist's Union	Conservation Committee Chair	
Gosselink	Todd	Iowa DNR Wildlife	Wild Turkey Biologist	Chariton, IA
Griffin	Mike	Iowa DNR Wildlife	Mississippi River Coordinator	Bellevue, IA
Gritters	Scott	American Fisheries Society	President	Guttenberg, IA
Hall	Jeff	Representative Boswell's Staff	Staff member	Des Moines, IA
Hansen	Steve	Iowa Woodland Owners Association		Des Moines, IA
Harr	Doug	Iowa DNR Wildlife	Wildlife Diversity Coordinator	Boone, IA
Harson	Greg	Iowa DNR Enforcement	Conservation Officer	Little Rock, IA
Heiser	Neil	Iowa DNR Wildlife	District Wildlife Supervisor	Spirit Lake, IA
Hendricks	Ace	Woodland Growers		Ackworth, IA
Hey	Jane	Morningside College		
Hill	Spencer	Iowa Trappers Association	President	Kanawha, IA
Holland	Steve	Iowa DOT		Ames, IA
Howell	Daryl	Iowa DNR Parks	Senior Environmental Specialist	Des Moines, IA
Hummel	Steve	Ida Co. Cons Bd	Board Member	Lake View, IA
Johnson	Ann	IA Odonata Society	Vice-Chair	Norwalk, IA
Johnson	Chuck	Loess Hills Audubon	Representative	Sioux City, IA
Kane	Kevin	Iowa State University	GIS Facility Director	Ames, IA
Klaas	Erv	Iowa State University (retired)	Professor Emeritus	Ames, IA
Kline	Don	Iowa DNR Fisheries	Natural Resource Biologist	Brighton, IA
Koenig	Darwin	Iowa Audubon		Ankeny IA
Koford	Rolf	Iowa Coop Unit	Professor	Ames, IA
Lamb	Inger	IA Prairie Network, IA Native Lands	President	
Lampe	Richard	Biology Department Buena Vista University	Professor	Storm Lake, IA
Lancaster	Jennifer	Iowa DNR Enforcement	District Law Enforcement Supervisor	Manchester, IA
Larson	Chris	Iowa DNR Fisheries	Natural Resource Technician	Lewis, IA
LeClere	Jeff		Consultant	St Paul, MN

Name - Last	Name- First	Affiliation	Title	Address
Leopold	Rich	Iowa Environmental Council	Chair	Des Moines, IA
Little	Terry	Iowa DNR Wildlife	Wildlife Research Supervisor Wildlife Diversity Supervisor	Des Moines, IA
MacInroy	Mark	Iowa DNR Wildlife	Wildlife Diversity Technician	Boone, IA
Major	Annabelle	Iowa State University	Grad Student	Ames, IA
Moritz	Bob	Loess Hills Alliance	Chair	Sioux City, IA
Neumann	Kay	Iowa Rehabilitator's Association	President	Dedham, IA
O'Brien	Jason	Iowa NatureMapping	Prog. Coord.	Ames, IA
Olsen	Frank	Lepidopterist		
Otis	Dave	Iowa Cooperative Fish & Wildlife Research Unit	Professor	Ames, IA
Parmalee	Jeff	Simpson College	Professor	Indianola, IA
Poole	Kelly	Iowa Department of Transportation	Aquatic Ecologist	Ames, IA
Roberts	Steve	Iowa DNR - Wildlife	Biometrician	Boone, IA
Robinson	Rick	Iowa Farm Bureau Federation	Environmental Coordinator	West Des Moines, IA
Rovang	Rodney	U.S. Park Service	Resource Manager	Harper's Ferry, IA
Sand	Duane	INHF		Norwalk, IA
Schlarbaum	Pat	Iowa DNR Wildlife	Wildlife Diversity Program Technician	Boone, IA
Schlict	Dennis		Biology Teacher	Center Point, IA
Schwager	Marty	Iowa Pork Producer's Association	Executive Director	Clive, IA
Skibbe	Jessica	Iowa State University	grad student	Ames, IA
Skold	Steve	Safari Club International	Regional Rep.	West Des Moines, IA
Smith	Kelly	Iowa DNR Wildlife	Landowner Incentive Program Coordinator	Des Moines, IA
Sproul	Tim	Harrison CCB	Director	Woodbine, IA
Steffen	Chuck	The Wildlife Society	President	Ottumwa, IA
Suchy	Willie	Iowa DNR Wildlife	Deer Biologist	Chariton, IA
Sweet	Mike	US Fish & Wildlife Service	Biologist	Ft. Snelling MN
Sweet	Craig	Iowa Trappers Association		IA
Swinton	Rod	Iowa Tree Farm Committee		Waterloo, IA
Szcodronski	Kevin	Iowa DNR Parks	Bureau Chief	Des Moines, IA
VanDeWalle	Terry	EarthTech	Biologist	Waterloo, IA
VanWaus	Dave	Pheasants Forever	Regional Director	Colo, IA
Walkowiak	John	Iowa DNR Forestry	Bureau Chief	Des Moines, IA
Weedum	Joe	Hawkeye Flyfishing Association	President	Altoona, IA
Whittlesey	Dave	National Wild Turkey Federation	Supervisor	Woodburn, IA
Wooley	Jim	Pheasants Forever	State Director	Chariton, IA
Zarwell	Rick	Iowa Audubon	Important Bird Area Coordinator	Lansing, IA

Name - Last	Name- First	Affiliation	Title	Address
Zenner	Guy	Iowa DNR - Wildlife	Waterfowl Biologist	Clear Lake, IA
Ziemer	Kathleen	Butterflies of Iowa		Des Moines, IA
Zohrer	Jim	E Resources, Inc.	Private Consultant	West Des Moines, IA

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2-2. Advisory Group Meeting Agenda

SECURING A FUTURE FOR FISH AND WILDLIFE: A Conservation Legacy for Iowans

State Historical Museum
Des Moines, IA
July 17, 2004

<u>Time</u>	<u>Activity</u>
8:30 – 9:00 a.m.	Registration and Refreshments
9:00 - 9:30 a.m.	Welcome – <i>DNR Director Jeff Vonk</i> Introduction to the State Comprehensive Wildlife Conservation Plan (SCWCP) – <i>Terry Little, DNR Wildlife Research Supervisor,</i>
9:30 – 10:15 a.m.	Status Report on the Condition of Iowa's Wildlife – <i>Jim Zohrer, SCWCP author</i>
10:15 a.m. – Noon	Developing a Vision: Iowa's Fish and Wildlife in 2050 – Facilitated group activity
Noon – 1:00 p.m.	Lunch
1:00 – 1:15 p.m.	Vision Recap and Consensus – <i>Jim Zohrer</i>
1:15 – 3:45 p.m.	Implementing the Vision: Conservation strategies for the next 50 years – Facilitated group activity
3:45 – 4:00 p.m.	Next Steps: Developing and Accepting the Plan – <i>Jim Zohrer</i>

2-3. Status Document Summary

Introduction. The Iowa Department of Natural Resources has the responsibility for preparing a comprehensive wildlife conservation plan by October of 2005. The plan will include eight required "elements". These elements are:

1. information on the distribution and abundance of species of wildlife;
2. descriptions of locations and conditions of key habitats and community types;
3. descriptions of problems which may adversely affect identified species;
4. descriptions of conservation actions necessary to conserve identified species;
5. plans for monitoring identified species and their habitats;
6. plan review procedures;
7. efforts for coordinating the plan with other land management agencies;
8. description of public participation.

The first step in the preparation of the plan involves the creation of a "Status Document" that includes the first, second and introduction to the third required elements as listed above.

Procedures. A Wildlife Plan Steering Committee was established in late 2003 to assist in the listing of species of conservation concern and to further guide in the writing of the conservation plan. The Steering Committee is made up of 16 individuals plus the Plan author. The members are experts in various wildlife related fields and represent a number of organizations including Iowa County Conservation Boards, Iowa State University, Iowa Department of Natural Resources, The Nature Conservancy, the Iowa Natural Heritage Foundation, the Audubon Society and private individuals. The committee decided that species to be included in the plan should be those for which the Department of Natural Resources has management authority by law (as listed in the Code of Iowa), those included on the state's endangered and Threatened species list, and other groups for which adequate distribution and abundance information is available. The Steering Committee prepared complete lists of all species of each group found in this state, reduced these lists to shorter lists of "species of conservation concern", and helped in the preparation and review of the Status Document.

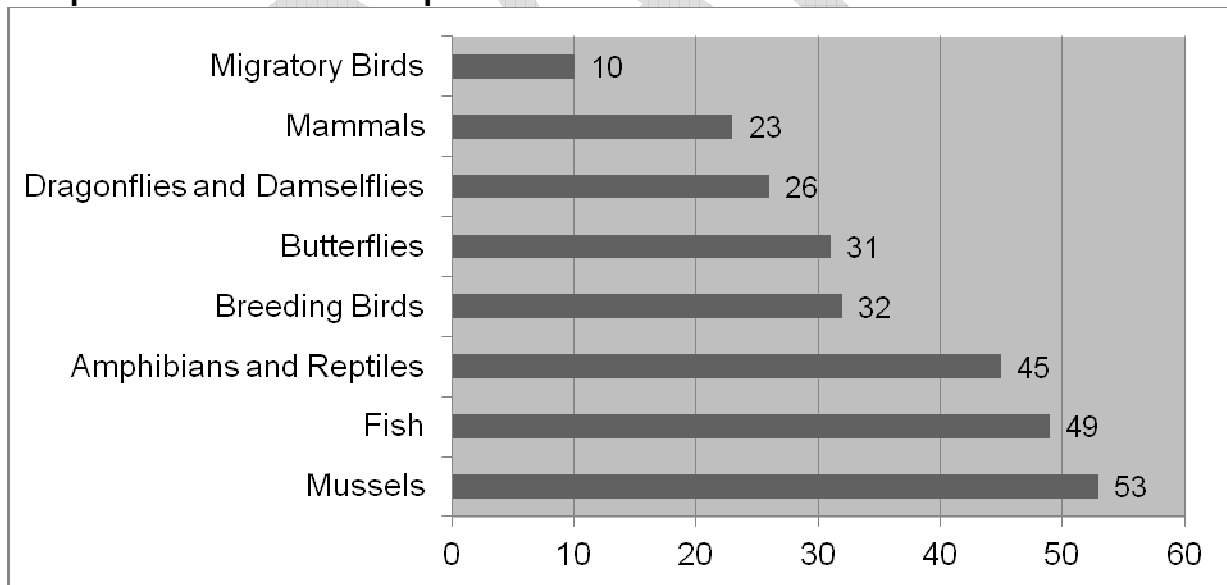
Results. Iowa is considered by many to be the most altered state in the nation. Prior to European settlement, Iowa was covered by tallgrass prairie, millions of acres of wetlands, wooded river corridors and forested hills in the Northeast part of the state. Today, 90% of the state has been converted for agricultural uses with only 43% of the historic forests, 5% of the wetlands and less than .1% of the original native prairie remaining. Wildlife species responded to the changing landscape, many declined while other flourished in the agricultural setting. Of the 999 species considered in the Plan, 31% are considered as being of the greatest conservation concern as shown in Table 2-1.

Table 2-1. Percent of Species with the Greatest Conservation Concern

Group	Total Iowa Species Considered	Number with Greatest Need	Percent of Group Total
Fish	153	75	49
Breeding Birds	206	66	32
Butterflies	119	37	31
Mussels	55	29	53
Migratory Birds	199	19	10
Mammals	82	19	23
Land Snails*	8	8	100
Amphibians and Reptiles	71	32	45
Dragonflies and Damselflies	106	28	26
TOTALS	999	313	31

*Only Iowa Endangered, or Threatened species listed.

Of the eight groups of animals considered in the plan (excluding land snails), those showing the highest percentage with species of conservation concern are primarily aquatic groups as shown in the graph below. This may indicate that aquatic habitats and communities may offer the biggest challenges in Iowa.

Graph 2-1. Percent of Group of Conservation Concern

An analysis of habitat use by species of conservation concern shows that the most used terrestrial habitats include wetlands and native prairie, while the most used aquatic habitats include rivers and lakes. (Table 2-2)

Table 2-2. Habitat Utilization by Species of Concern

Land Cover Type	Number of Species Utilization
Terrestrial Habitats	
Herbaceous Wetland	62
Native Prairie	57
Forest	47
Agricultural Lands	46
Woodlands	41
Wet-forest/Woodlands	28
Savanna	20
Shrubland	16
Wet Shrubland	7
Aquatic Habitats	
Rivers	74
Lakes	38
Streams	30
Creek	30
Backwater	27
Impoundment	12

Of the terrestrial habitats, it is interesting that the most used habitats (wetlands and native prairie) are also those that have been the most reduced since presettlement times.

Remaining Planning. The status document will now be presented to a State Advisory Group made up of representatives from conservation agencies and organizations, commodity groups and private individuals. The Advisory Group will help develop a vision for the management of Iowa's fish and wildlife in the future and will help in identifying strategies for the implementation of species and habitat management practices. The remainder of the plan will focus on answering required elements three through eight as listed above. Additional coordination will be completed with agencies, organizations and individuals and comments on the Plan will be solicited from the public at various meeting throughout the state during the next twelve months. The final Plan will be a historic document that outlines the management of all species of fish and wildlife and their habitats in this state. For the next quarter century it will serve as a guide for fish and wildlife conservation efforts in Iowa.

2-4. Vision Statement Elements.

The full advisory group broke into eight working groups to craft elements of a vision statement for Iowa wildlife in the year 2030 (a 25-year vision). Individuals were first asked to list their individual ideas on possible elements to be included in the vision statement. Individuals listed 256 possible vision elements. These ideas were shared with their small working group. Similar ideas were then combined and then prioritized into four vision statement elements. The 32 elements submitted by the 8 working groups are listed below in four priority groupings.

Priority One

1. Habitat to maintain species throughout the state on public and private land through large habitat corridors.
2. Maintain viable populations of wildlife and plant communities in concert with the economic needs of Iowa.
3. 100% of agricultural land will be managed under approved conservation practices including permanent buffers on all waterways.
4. Connecting corridors between multiple representations of major protected ecosystem types.
5. Self-sustaining wildlife populations across the state with goal of minimizing the number of Threatened and Endangered species.
6. There is stable, permanent funding for Iowa's natural resources and environmental education.
7. By 2030, reverse watershed and hydrologic alterations to benefit all habitats.
8. Accelerated acquisition of critical habitats in the state (up to 10% of the land base).

Priority Two

9. The general public understands ecological principles and respects and shares space with wildlife.
10. Optimize management for all native species utilizing key ecological management principles on all lands.
11. By 2030, all Iowa citizens contribute annually to fish and wildlife conservation at a level equal to the national average per capita.
12. The Threatened and Endangered Species list is no longer necessary - all have recovered.
13. Ensure healthy ecosystems that incorporate representative habitats connected through safe habitat corridors.
14. There is a 50% increase in participation in outdoor activities associated with fish and wildlife and their habitats with all Iowans having opportunities to participate in consumptive uses of natural resources.

15. Increase biodiversity and numbers within species of concern, and no loss of present abundant species.
16. Dependable and expanded source of conservation funding.

Priority Three

17. All Iowans (including conservation groups and agencies) are engaged in funding and supporting the fish and wildlife and other natural resources of the state.
18. Landowners and conservationists work in harmony.
19. Establish a network of diverse habitats such that 10% of the state's land base is in public ownership and less than 10% of species remain on the list of conservation concern species.
20. Government conservation spending is dependable, secure and appreciated as a powerful economic investment.
21. 10% permanently protected, publically accessible land in each of Iowa's counties.
22. All Iowans understand the state's natural resource issues and how they relate to the economy, quality of life, and quality of habitat.
23. Every Iowan will have a land and water ethic, and all are advocates for our natural resources.
24. Expanded knowledge of existing organisms in Iowa, and effective communication of this data.

Priority Four

25. Iowans practice environmentally sustainable agriculture.
26. Create a comprehensive list and better data on populations and ecological processes of all species in Iowa.
27. All citizens understand the value of conservation (economics and biology) and have opportunities for both consumptive and non-consumptive use.
28. Maintain diverse opportunities for all people to enjoy and benefit from wildlife.
29. Mandated environmental education curriculum in K-12 classrooms.
30. Wildlife and fisheries management is based on science, not emotions or politics because political leaders are aware of the economic benefits and social values of Iowa's natural resources.
31. Restoration and protection of diverse and representative natural landscapes, large and small, public and private.
32. Increased wetland habitat by 500% over 2000 estimate, including ephemeral ponds and 25% of all potholes.

In general, the 32 suggested vision statement elements fell under *habitat statements, wildlife statements, education statements, and management statements*. All 32-vision statement elements were combined and refined into four top priorities as listed below.

Habitat-related Priority

Adequate, diverse habitat (10% of land base), including habitat corridors, exist to serve the needs of fish and wildlife.

Wildlife-related Priority

Sustainable wildlife populations exist so that the Threatened and Endangered Species List is no longer needed.

Education-related Priority

General public understands ecological principles, respects wildlife, and participates in nature-based activities.

Management-related Priority

Optimize management for wildlife and plan communities using key ecological management principles and techniques on all lands.

A fifth frequently mentioned element related to securing an adequate and dependable source of conservation funding. It was determined that this is actually a conservation strategy and should be included there.

2-5. Conservation strategies to implement vision elements.

The eight working groups reconvened to develop strategies that would implement each vision element.

Habitat related element- Adequate, diverse habitat (10% of land base), including habitat corridors, exist to serve the needs of fish and wildlife.

1. Develop partnerships to provide adequate, sustained reliable funding to restore, protect and manage a diverse habitat base, with priority to identified habitats, (i.e. percentage of sales tax dedicated to fish and wildlife).
2. Develop tax incentives to encourage good land stewardship.
3. Use news media to tell "quality of life" stories of relationship of wildlife to economic vitality.
4. Educate Iowans on the value of wildlife and associated recreation.
5. Legislate meaningful, well-defined laws to protect wetlands, prairies, forests and other significant areas.
6. Strategize to get legislators and key decision makers "on our side".
7. Put \$20 million a year into land acquisition and long-term private land agreements for habitat establishment.
8. Increase research to evaluate the effects of land practices on various species.
9. Focus on species of concern.
10. Return rural right-of-ways to native species.
11. Set and fund annual land protection goals.
12. Develop targeted priority conservation areas.
13. Restore naturalized stream hydrology.
14. Develop statewide comprehensive hydrology model to identify priority conservation areas.
15. Identify and permanently protect landscape and biodiversity in regions of ecological importance.
16. Restore and protect at least two large tracts in every landform region.
17. Permanent protection and enhancement of existing riparian areas.
18. Promote federal farm programs that benefit wildlife and eliminate those that result in habitat loss.
19. Buffers riparian to all rivers and streams.
20. Create and implement watershed conservation plans for comprehensive systems/habitat conservation areas.
21. (Secure funding.) Full funding for REAP.
22. Identify and expand staff needs.
23. Determine costs to implement strategies.
24. Identify potential funding sources.
25. (Public Ownership) Acquire ownership/easements.
26. Identify where current habitat needs are.
27. Identify needed corridors among existing habitats.
28. Acquire, restore and manage large tracts of natural areas.
29. Promote ecotourism.

30. Streamline acquisition process.
31. Take advantage of key acquisition opportunities.
32. Promote greater public/private partnerships.
33. Develop/promote volunteer efforts to assist land management.
26. (Private Lands) Provide management assistance for private lands.
27. Increase/maintain incentives including property tax incentives.
28. Promote/expand continuation of long-term federal conservation programs.
29. Promote importance of economic benefits of wildlife.
30. Increase education for land stewardship.
31. (Research/Management) Determine additional habitat needs (greater than 10% of land area).
32. Identify needs of wildlife and restore forests, wetlands and prairies to meet those needs.
33. Cooperate with adjacent states, Federal and tribal landowners with habitat restoration and management.
34. Public ownership through aggressive acquisition program of 5% of land base.
35. Set and fund land protection goals to meet habitat base in 10-20 years.
36. Remove dams to modify for fish movement.

Wildlife related element- Sustainable wildlife populations exist so that the Threatened and Endangered Species List is no longer needed.

37. (Policy) Dollar incentives to reward sound management practices.
38. Economic disincentives for bad management practices.
39. Institute statewide watershed policies and regulations.
40. Coordinate land management policy among all layers of government, expand to engage private sector partnerships.
41. Increase and stabilize state and federal funding for Threatened and endangered species focused on habitat.
42. Implement statewide land use plan to direct economic development while expanding fish and wildlife habitat.
43. Strong coalitions between DNR, federal government, environmental groups and landowner community (especially agricultural).
44. Better enforcement of existing regulations.
45. Delist species as soon as possible to demonstrate success and solidify landowner and political support.
46. Provide State Wildlife Grant funding to all DNR bureaus that manage public lands.
47. (Land Management) Conduct research on habitat requirements of Threatened and Endangered species, then restore habitats that meet those requirements.
48. Develop ecosystem based management plans that promote biodiversity.
49. Acquire, preserve and enlarge habitat tracts on which existing Threatened and Endangered populations occur.
50. Maintain predator-prey balance.

51. Implement baseline surveys and long-term monitoring of populations.
52. Informed reintroduction and relocation of Threatened and Endangered species.
53. Adequate control of exotic invasive species.
54. (Education) A well-informed and engaged political and administrative leadership.
55. Provide educational programs for landowners to understand sound management practices.
56. Increase public support for conservation programs through a marketing campaign, education, land stewardship, and citizen data collection.
57. Increase database/inventory of fish, wildlife and habitat.
58. Secure adequate and permanent funding.
59. Create partnerships among all entities.
60. Document relationships between water quality and sustainable wildlife.
61. Mandate curriculum in Iowa schools.
62. Educate all Iowans about issues in Iowa.
63. Prevent spread of invasive species.
64. Provide access (walk-in) areas to improve private habitat.
- 70 (Funding) Pursue a sales tax option.
65. Educate public elected officials about the need for this type of funding.
66. Institute a non-game user fee.
67. Institute an excise tax on products (i.e. Teaming With Wildlife).
68. Institute an access fee for state-owned public areas including parks.
69. Institute a vehicle, boat, ATV, motorcycle, watercraft fee.
70. Review other state's funding mechanisms.
71. Institute a dove stamp, butterfly stamp, etc..
72. Hold a dove season.
73. Promote ecotourism such as the monarch migration, Loess hills, pheasant hunting, pelican watches, winter bald eagles and Tundra Swans, dove season.
74. Concentrate management of communities and ecosystems instead of single species.
75. Create and implement watershed conservation plans for comprehensive systems for habitat conservation areas.

Education related element- General public understands ecological principles, respects wildlife, and participates in nature-based activity.

76. Develop and implement a comprehensive environmental education strategy for pre K-adult - with a required or reward system for pre K-12 classroom curriculum.
77. Expand public relations program to better market Iowa's natural resources - broad target audience (market research) - not just hunters and anglers - be pro active - buy TV time - including improvement of natural resource profession image through better customer relations and respect for the public.
78. Work with national agencies and organizations to help model public relations programs and other information.
79. Network - All conservation groups and agencies work together to collaborate efforts and funding.
80. Expand Master Conservationist Program.
81. Develop and implement residential programs by District - use existing nature areas - subsidized for families, adults and teachers.
82. Expand outdoor classrooms (staff people to coordinate this).
83. Integrate the management process by involving the public through monitoring wildlife and fish (citizen science programs) such as IOWATER and NatureMapping.
84. Conduct regional eco-fairs.
85. Create a DNR wildlife hotline.
86. Create a professional speakers database (including current research).
87. Institutionalize an improved fish and wildlife management curriculum specific to Iowa in K-12 schools.
88. Retrain teachers.
89. Get fish and wildlife management questions on standardized tests.
90. Engage ICEC, IAN, and AEAs.
91. Develop hands-on outdoor activities for schools.
92. Encourage physical education teachers to promote outdoor activities (hiking, fishing, hunting, trapping, birding, etc.).
93. Develop a sustainable, broad-based funding mechanism to support improved education efforts (such as 0.1 or 1% of sales tax, etc.).
94. Develop an Education Bureau within the DNR to: 1. develop a campaign that links quality of life, economics and fish and wildlife activities, 2. contract with a professional agency to develop a media campaign to raise awareness of the importance of fish and wildlife diversity and habitats, 3. coordinate with CCB's, NRCS, FSA, FWS, Extension, and NGO's to deliver a consistent fish and wildlife diversity message, particularly to Iowa's private landowners, 4. create urban fish and wildlife specialists to work in metropolitan areas, 5. create a wildlife diversity website, 6. expand hunter education classes in areas of fish and wildlife management and ethical use.

95. Provide abundant accessible public lands for a variety of recreational activities (such as hunting, fishing, hiking, birding, trapping, biking, etc.) proximate to populations centers.
96. Promote and improve outdoor education fairs, such as the hawk watch, bird festivals, eagle days, etc., with improved and expanded environmental education materials.
97. Develop a "Habitat Stewardship Certification".

Management related element- Optimize management for wildlife and plant communities using key ecological management principles and techniques on all lands.

98. Encourage, by law, good conservation stewardship and management on a watershed basis in the state through funding incentives, enforcement, and education
99. Create management teams for each of the watersheds.
100. Conduct biological surveys in each watershed, monitor key groups and determine best management practices for key habitats and species.
101. Develop new and more dependable sources of sustainable funding such as a percent of the state sales tax and prioritize existing funding and incentive programs to target critical habitats and species of concern.
102. Improve coordination and sharing of information between agencies, NGO's and private sector (such as a web-page for information).
103. Develop a statewide invasive species management plan.
104. Prevent development of agricultural confinement operations in historic flood plains.
105. Construct catch basins or buffer strips for wetlands and other protected ecosystems.
106. Work with policy makers on improving wildlife habitat within federal farm policy.
107. Utilize performance based land management on public and private land (measure outcomes to optimize management).
108. Provide adequate resources to monitor outcome and provide decision support models.
109. Institute performance based wildlife management, adequately fund diversity management of state lands so they can be a model of ecosystem management (before and after monitoring and implementation and tracking systems).
110. Use USDA and partnership dollars on large targeted landscapes.
111. Coordinate land management message to have a consistent voice among land management agencies/organizations.
112. Add wildlife biologist positions.
113. Utilize existing NRCS CSP and GRP for advancing rotational grazing and diverse crop rotations.
114. Start a DNR wetland banking program to restore critical habitat.

115. Reform property tax programs to reward protection and management of habitats.
116. Seek full mitigation funding from the road system.
117. Tie wildlife biologists salaries to wildlife conservation goals met (incentives).
118. Invest adequate resources into science and ecological planning to aid in setting focused effective goals (for example- understanding the impact of burns)(how much burning is enough).
119. Use Clean Water Act and dollars to address needs of aquatic species. There is a lack of political will to use Clean Water Act to protect aquatic species.
120. Increase education of private landowners through regional classes to show benefits to wildlife and the public.
121. All DNR Divisions work together in effective and efficient resource management. (All divisions and programs should be base funded.)
122. Develop a statewide monitoring program for all wildlife species.
123. Provide continued or additional technical assistance, cost-share funding etc. to aid landowners with land management.
124. Aggressive control of invasive species using early detection and effective strategies.

The Advisory Group decided that there was no need to reconvene for face-to-face meetings - future reviews of the Wildlife Action Plan should be by e-mail or hard copy. The results of this Advisory Group meeting were sent to participants and invitees that did not attend for review and final comment.

Attachment 2-6. Advisory Group Meeting Feedback Form

Feedback Form Iowa Comprehensive Wildlife Conservation Plan Advisory Group Meeting - July 17, 2004

Thank you for your interest in the Iowa Comprehensive Wildlife Conservation Plan that we call "*SECURING A FUTURE FOR FISH AND WILDLIFE: A conservation Legacy for Iowans*". The Advisory Group met in Des Moines on July 17th for an update on the status of wildlife in Iowa and to provide input for the vision of Iowa wildlife in the year 2030. A copy of the summary of that meeting is attached. Even if you did not attend the meeting, your input on the meeting results and the plan in general are welcomed. If you want to comment please complete this form and return it in the enclosed envelope.

1. NAME: _____
AFFILIATION: _____

2. Did you attend the meeting? yes _____ no _____

3. Do you want to receive additional information on the plan and on future meetings?

yes _____ no _____. If yes, do you want information by mail or e-mail? _____

4. Comments on the Vision Statement Elements:

5. Comments on Conservation Strategies:

6. Comments on the Wildlife Conservation Plan in general:

7. Additional comments:

APPENDIX 3. List of Iowa breeding birds considered by the IWAP.

Iowa Abundance: A = abundant, C = common, CL = common locally, U = uncommon, R = rare, XS = extinct, X = extirpated, EX = exotic.

See Appendix 11 definitions of NatureServe Iowa and National Status rankings.

Priority Status: From 2002 Birds of Conservation Concern lists in Bird Conservation Regions 11 (Prairie Pothole), 22 (Eastern Tallgrass Prairie), 23 (Prairie Hardwood Transition), and 3 (FWS Region 3).

Taxonomic order derived from the American Ornithologists' Union Check-List of North American Birds, which can be accessed at: <http://www.aou.org/checklist/north/>

Common Name	Scientific Name	Iowa Abundance	Iowa Status	National Status	Priority Status*
Canada goose	<i>Branta canadensis</i>	A	S5B, S5N	N5B, N5N	
Mute swan	<i>Cygnus olor</i>	EX/R	SE4	NE	
Trumpeter swan	<i>Cygnus buccinator</i>	R	S2B	N4B, N4N	11
American wigeon	<i>Anas americana</i>	R	S2B, S5N	N5B, N5N	
Wood duck	<i>Aix sponsa</i>	A	S5B, S5N	N5B, N5N	
Gadwall	<i>Anas strepera</i>	U	SAB, S4N	N5B, N5N	
American black duck	<i>Anas rubripes</i>	R	SAB, SZN	N5B, N5N	
Mallard	<i>Anas platyrhynchos</i>	A	S5B, S5N	N5B, N5N	
Blue-winged teal	<i>Anas discors</i>	A	S4B, S5N	N5B, N5N	
Northern shoveler	<i>Anas clypeata</i>	U	S2B, S5N	N5B, N5N	
Northern pintail	<i>Anas acuta</i>	R	S2B, S5N	N5B, N5N	
Green-winged teal	<i>Anas crecca</i>	R	S2B, S5N	N5B, N5N	
Canvasback	<i>Aythya valisineria</i>	R	S2B, S4N	N5B, N5N	
Redhead	<i>Aythya americana</i>	U	S2B, S4N	N5B, N5N	
Ring-necked duck	<i>Aythya collaris</i>	R	SAB, S4N	N5B, N5N	
Lesser scaup	<i>Aythya affinis</i>	R	SAB, S5N	N5B, N5N	
Bufflehead	<i>Bucephala albeola</i>	R	SAB, S3N	N5B, N5N	
Hooded merganser	<i>Lophodytes cucullatus</i>	U	S2B, S3N	N5B, N5N	23,11
Ruddy duck	<i>Oxyura jamaicensis</i>	U	S2B, S4N	N5B, N5N	
Northern bobwhite	<i>Colinus virginianus</i>	CL	S5B	N5	
Gray partridge	<i>Perdix perdix</i>	EX	SE4	NE	
Ring-necked pheasant	<i>Phasianus colchicus</i>	EX	SE5	NE5	
Ruffed grouse	<i>Bonasa umbellus</i>	U	S4B	N5	
Sharp-tailed Grouse	<i>Tympanuchus phasianellus</i>	R	S1B	N4	
Greater prairie-chicken	<i>Tympanuchus cupido</i>	R	S1B	N4	22,11
Wild turkey	<i>Meleagris gallopavo</i>	A	S5B	N5	

Common Name	Scientific Name	Iowa Abundance	Iowa Status	National Status	Priority Status*
Common loon	<i>Gavia immer</i>	X	SXB, S4N	N4B, N5N	
Pied-billed grebe	<i>Podilymbus podiceps</i>	C	S4B, S4N	N5B, N5N	11
Red-necked grebe	<i>Podiceps grisegena</i>	R	SAB, S2N	N5B, N5N	
Eared grebe	<i>Podiceps nigricollis</i>	R	SAB, S2N	N5B, N5N	
Western grebe	<i>Aechmophorus occidentalis</i>	R	SAB, S2N	N5B, N5N	
American white pelican	<i>Pelecanus erythrorhynchos</i>	C	S4N	N3B, N3N	
Double-crested cormorant	<i>Phalacrocorax auritus</i>	LC.	S3B, S5N	N5B, N5N	
American bittern	<i>Botaurus lentiginosus</i>	R	S2B	N4B, N4N	11,3
Least bittern	<i>Ixobrychus exilis</i>	U	S3B, S2N	N5B, N5N	
Great blue heron	<i>Ardea herodias</i>	LC	S3B	N5B, N5N	
Great egret	<i>Ardea albus</i>	U	S3B, S4N	N5B, N5N	
Little blue heron	<i>Egretta caerulea</i>	R	SAB, S2N	N5B, N5N	
Cattle egret	<i>Bubulcus ibis</i>	R	SAB, S4N	N5B, N5N	
Green heron	<i>Butorides virescens</i>	C	S3B	N5B, N5N	
Black-crowned night-heron	<i>Nycticorax nycticorax</i>	R	S3B, S3N	N5B, N5N	
Yellow-crowned night-heron	<i>Nyctanassa violacea</i>	R	S3B, S3N	N5B, N5N	
White-faced ibis	<i>Plegadis chihi</i>	R	SAB	N4B, N4N	
Turkey vulture	<i>Cathartes aura</i>	U	S4B, S5N	N5B, N5N	
Osprey	<i>Pandion haliaetus</i>	R	S1B, S3N	N5B, N4N	
Swallow-tailed kite	<i>Elanoides forficatus</i>	X	SXB	N3B	
Mississippi kite	<i>Ictinia mississippiensis</i>	R	SAB	N5B	
Bald eagle	<i>Haliaeetus leucocephalus</i>	Endangered R	S3B, S3N	N4B, N4N	23,11
Northern harrier	<i>Circus cyaneus</i>	Endangered R	S2B, S4N	N5B, N5N	11,22
Sharp-shinned hawk	<i>Accipiter striatus</i>	R	SAB, S3N	N5B, N5N	
Cooper's hawk	<i>Accipiter cooperii</i>	U	S3B	N5B, N5N	
Red-shouldered hawk	<i>Buteo lineatus</i>	Endangered U	S2B	N5B, N5N	23
Broad-winged hawk	<i>Buteo platypterus</i>	R	S3B	N5B	
Swainson's hawk	<i>Buteo swainsoni</i>	R	S3B, S3N	N5B	11,3
Red-tailed hawk	<i>Buteo jamaicensis</i>	A	S5B, S5N	N5B, N5N	
American kestrel	<i>Falco sparverius</i>	C	S5B, S5N	N5B, N5N	
Merlin	<i>Falco columbarius</i>	X	SXB	N4B, N4N	
Peregrine falcon	<i>Falco peregrinus</i>	Endangered R	S1B	N4B, N4N	11,22,23,3

Common Name	Scientific Name	Iowa Abundance	Iowa Status	National Status	Priority Status*
King rail	<i>Rallus elegans</i>	Endangered U	SAB, S5N	N4B, N4N	23
Virginia rail	<i>Rallus limicola</i>	U	S3B, S3N	N5B, N5N	11
Sora	<i>Porzana carolina</i>	U	S3B, S5N	N5B, N5N	11
Common moorhen	<i>Gallinula chloropus</i>	R	S2B, S2N	N5B, N5N	
American coot	<i>Fulica americana</i>	C	S5B, S5N	N5B, N5N	
Sandhill crane	<i>Grus canadensis</i>	R	S1B, S1N	N5B, N5N	23
Whooping crane	<i>Grus americana</i>	R	SXB	N1N	
Piping plover	<i>Charadrius melodus</i>	Endangered R	S1B	N3B, N3N	
Killdeer	<i>Charadrius vociferus</i>	A	S5B, S5N	N5B, N5N	
Spotted sandpiper	<i>Actitis macularia</i>	C	S3B, S4N	N5B, N5N	
Upland sandpiper	<i>Bartramia longicauda</i>	U	S3B	N5B	11,22,23,3
Long-billed curlew	<i>Numenius americanus</i>	X	SXB	N5B, N5N	11
Marbled godwit	<i>Limosa Fedoa</i>	X	SXB	N5B, N5N	11,22,23,3
Wilson's snipe	<i>Gallinago delicata</i>	R	S3B	NPB, NAN	
American woodcock	<i>Scolopax minor</i>	C	S4B, S5N	N5B, N5N	
Wilson's phalarope	<i>Phalaropus tricolor</i>	R	S3N	N5B	11,22,23,3
Franklin's gull	<i>Larus pipixcan</i>	R	SAB	N4B	11
Ring-billed gull	<i>Larus delawarensis</i>	R	S5N	N5B, N5N	
Least tern	<i>Sterna antillarum</i>	Endangered R	S1B, S1N	N?	
Black tern	<i>Chlidonias niger</i>	Special Concern U	S1B, S4N	N4B	23,3,11
Forster's tern	<i>Sterna forsteri</i>	Special Concern U	S2B, S3N	N5B, N5N	11
Rock pigeon	<i>Columba livia</i>	A	S5B, S5N	N5B, N5N	
Eurasian collared-dove	<i>Streptopelia decaocto</i>	EX	SNA	NNA	
Mourning dove	<i>Zenaida macroura</i>	A	S5B, S5N	N5	
Passenger pigeon	<i>Ectopistes miratorius</i>	XS	SX	NX	
Carolina parakeet	<i>Conuropsis carolinensis</i>	XS	SX	NX	
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	C	S3B	N5B	23,22
Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>	C	S3B	N5B	11,22,23,3
Barn owl	<i>Tyto alba</i>	Endangered R	S1B	N5	
Eastern screech-owl	<i>Otus asio</i>	C	S4B	N5	
Great horned owl	<i>Bubo virginianus</i>	C	S5B	N5	
Burrowing owl	<i>Athene cunicularia</i>	R	S1B	N4B, N4N	11
Barred owl	<i>Strix varia</i>	C	S5B	N5	
Long-eared owl	<i>Asio otus</i>	Threatened U	S2B, S3N	N5B, N5N	23,22
Short-eared owl	<i>Asio flammeus</i>	Endangered R	S1B, S2N	N5B, N5N	11,22,23,3
Common nighthawk	<i>Chordeiles minor</i>	C	S5B	N5B	

Common Name	Scientific Name	Iowa Abundance	Iowa Status	National Status	Priority Status*
Chuck-will's-widow	<i>Caprimulgus carolinensis</i>	R	S3B	N5B	22,3
Whip-poor-will	<i>Caprimulgus vociferus</i>	CL	S5B	N5B	22,23
Chimney swift	<i>Chaetura pelagica</i>	C	S5B	N5B	
Ruby-throated hummingbird	<i>Archilochus colubris</i>	C	S4B, S5N	N5B	22
Belted kingfisher	<i>Ceryle alcyon</i>	C	S4B	N5B, N5N	
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>	C	S5B	N5B, N5N	11,22,23,3
Red-bellied woodpecker	<i>Melanerpes carolinus</i>	CL	S5B	N5B, N5N	
Yellow-bellied sapsucker	<i>Sphyrapicus varius</i>	R, CL in NE	S1B, S3N	N5B, N5N	
Downy woodpecker	<i>Picoides pubescens</i>	C	S5B	N5	
Hairy woodpecker	<i>Picoides villosus</i>	C	S5B	N5	
Northern flicker	<i>Colaptes auratus</i>	C	S5B	N5B, N5N	22,11
Pileated woodpecker	<i>Dryocopus pileatus</i>	Endangered U, R in W	S3B	N5	
Eastern wood-pewee	<i>Contopus virens</i>	C	S4B, S4N	N5B	
Acadian flycatcher	<i>Empidonax virescens</i>	R	S3B, S3N	N5B	22,23,3
Willow flycatcher	<i>Empidonax traillii</i>	C	S4B, S4N	N5B	23,22
Least flycatcher	<i>Empidonax minimus</i>	R	S1B, S4N	N5B	
Eastern phoebe	<i>Sayornis phoebe</i>	C	S4B, S4N	N5B, N5N	
Say's phoebe	<i>Sayornis saya</i>	R	S2B, S3N	N4B, N5N	
Great crested flycatcher	<i>Myiarchus crinitus</i>	C	S4B, S4N	N5B	
Western kingbird	<i>Tyrannus verticalis</i>	R	S3B, S5N	N5B	
Eastern kingbird	<i>Tyrannus tyrannus</i>	A	S5B, S5N	N5B	22
Scissor-tailed flycatcher	<i>Tyrannus forficatus</i>	R	SAB	N5B	
Loggerhead shrike	<i>Lanius ludovicianus</i>	U	S3B, S3N	N4	11,22,23,3
White-eyed vireo	<i>Vireo griseus</i>	R	S2B, S3N	N5B, N5N	
Bell's vireo	<i>Vireo bellii</i>	U	S3B, S4N	N4B	22,23,3
Yellow-throated vireo	<i>Vireo flavifrons</i>	C in E U in W	S4B, S4N	N5B, N4N	23
Warbling vireo	<i>Vireo gilvus</i>	C	S5B, S5N	N5B	
Red-eyed vireo	<i>Vireo olivaceus</i>	C	S5B, S5N	N5B	
Blue jay	<i>Cyanocitta cristata</i>	C	S5B, S5N	N5B, N5N	
Black-billed magpie	<i>Pica pica</i>	R	SAB	N5	
American crow	<i>Corvus brachyrhynchos</i>	A	S5B, S5N	N5B, N5N	
Horned lark	<i>Eremophila alpestris</i>	C	S5B, S5N	N5B, N5N	
Purple martin	<i>Progne subis</i>	C	S5B, S5N	N5B	22
Tree swallow	<i>Tachycineta bicolor</i>	C	S5B, S5N	N5B	
N. Rough-winged swallow	<i>Stelgidopteryx serripennis</i>	C	S5B, S5N	N5B	
Bank swallow	<i>Riparia riparia</i>	C	S5B, S5N	N5B	

Common Name	Scientific Name	Iowa Abundance	Iowa Status	National Status	Priority Status*
Cliff swallow	<i>Hirundo pyrrhonota</i>	C	S5B, S5N	N5B	
Barn swallow	<i>Hirundo rustica</i>	A	S5B, S5N	N5B	
Black-capped chickadee	<i>Parus atricapillus</i>	A	S5B	N5	
Tufted titmouse	<i>Parus bicolor</i>	CL	S4B	N5	
Red-breasted nuthatch	<i>Sitta canadensis</i>	R	SAB, S3N	N5	
White-breasted nuthatch	<i>Sitta carolinensis</i>	C	S5B	N5	
Brown creeper	<i>Certhia americana</i>	R	S3B	N5	
Rock wren	<i>Salpinctes obsoletus</i>	R	SA	N5	
Carolina wren	<i>Thryothorus ludovicianus</i>	U	S3B, S3N	N5	
Bewick's wren	<i>Thryomanes bewickii</i>	R	S2B, S2N	N5B	22,3
House wren	<i>Troglodytes aedon</i>	A	S5B, S5N	N5B	
Winter wren	<i>Troglodytes troglodytes</i>	R	SAB	N5	
Sedge wren	<i>Cistothorus platensis</i>	U	S4B, S4N	N4B, N5N	23,22,11
Marsh wren	<i>Cistothorus palustris</i>	CL	S3B	N5B, N5N	11
Blue-gray gnatcatcher	<i>Polioptila caerulea</i>	C except R in NW	S4B, S4N	N5B, N5N	
Eastern bluebird	<i>Sialia sialis</i>	C	S4B, S5N	N5B, N5N	
Veery	<i>Catharus fuscescens</i>	R	S2B, S3N	N5B	23
Wood thrush	<i>Hylocichla mustelina</i>	U	S4B, S4N	N5B	22,23,3
American robin	<i>Turdus migratorius</i>	A	S5B, S5N	N5	
Gray catbird	<i>Dumetella carolinensis</i>	C	S5B	N5B, N5N	
Northern mockingbird	<i>Mimus polyglottos</i>	R	S3B	N5	
Brown thrasher	<i>Toxostoma rufum</i>	A	S5B, S5N	N5	22
European starling	<i>Sturnus vulgaris</i>	EX/A	SE5	NE5	
Cedar waxwing	<i>Bombycilla cedrorum</i>	C	S5B, S5N	N5	
Blue-winged warbler	<i>Vermivora pinus</i>	U in E R in W	S3B, S4N	N5B	22,23,3
Golden-winged warbler	<i>Vermivora chrysoptera</i>	U	S1B	N4B	23,3
Northern parula	<i>Parula americana</i>	R	S3B, S3N	N5B	22
Yellow warbler	<i>Dendroica petechia</i>	C	S4B	N5B, N5N	
Chestnut-sided warbler	<i>Dendroica pensylvanica</i>	R	S3B, S4N	N5B	23
Yellow-throated warbler	<i>Dendroica dominica</i>	R	S3B, S3N	N5B	
Prairie warbler	<i>Dendroica discolor</i>	R	SAB, S2N	N5B	3
Cerulean warbler	<i>Dendroica cerulea</i>	R	S2B, S3N	N4B	22,23,3
Black-and-white warbler	<i>Mniotilta varia</i>	R	S5N	N5B, N4N	
American redstart	<i>Setophaga ruticilla</i>	C	S4B, S4N	N5B	

Common Name	Scientific Name	Iowa Abundance	Iowa Status	National Status	Priority Status*
Prothonotary warbler	<i>Protonotaria citrea</i>	R	S3B, S3N	N5B	22,23
Worm-eating warbler	<i>Helmitheros vermivorus</i>	R	S2B, S2N	N5B	22,3,23
Ovenbird	<i>Seiurus aurocapillus</i>	U	S4B, S4N	N5B	
Louisiana waterthrush	<i>Seiurus motacilla</i>	R	S3B, S4N	N5B	22,3,23
Kentucky warbler	<i>Oporornis formosus</i>	R	S1B, S3N	N5B	22,23,3
Common yellowthroat	<i>Geothlypis trichas</i>	A	S5B, S5N	N5B	
Hooded warbler	<i>Wilsonia citrina</i>	R	S1B, S2N	N5B	23
Yellow-breasted chat	<i>Icteria virens</i>	R	S3B, S3N	N5B	22
Eastern towhee	<i>Pipilo erythrophthalmus</i>	CL	S4B, S4N	N5B	
Chipping sparrow	<i>Spizella passerina</i>	A	S5B, S5N	N5B, N5N	
Clay-colored sparrow	<i>Spizella pallida</i>	R	S2N	N4B, N4N	11
Field sparrow	<i>Spizella pusilla</i>	C	S5B, S5N	N5	22,23
Vesper sparrow	<i>Pooecetes gramineus</i>	C	S4B, S4N	N5B, N5N	11
Lark sparrow	<i>Chondestes grammacus</i>	CL	S4B	N5B	
Savannah sparrow	<i>Passerculus sandwichensis</i>	CL	S4B, S5N	N5B, N5N	
Grasshopper sparrow	<i>Ammodramus savannarum</i>	C	S4B, S4N	N5B, N5N	11,22,3,23
Henslow's sparrow	<i>Ammodramus henslowii</i>	Threatened R	S3B, S2N	N3B, N4N	11,22,23,3
Song sparrow	<i>Melospiza melodia</i>	C	S5B, S5N	N5B, N5N	
Swamp sparrow	<i>Melospiza georgiana</i>	U	S3B, S5N	N5B, N5N	
Summer tanager	<i>Piranga rubra</i>	R	S3B, S3N	N5B	
Scarlet tanager	<i>Piranga olivacea</i>	U	S4B, S4N	N5B	
Northern cardinal	<i>Cardinalis cardinalis</i>	C	S5B	N5B	
Rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>	C	S5B	N5B	
Blue grosbeak	<i>Guiraca caerulea</i>	CL	S3B, S3N	N5B	
Indigo bunting	<i>Passerina cyanea</i>	A	S5B, S5N	N5B	
Dickcissel	<i>Spiza americana</i>	A	S4B, S4N	N5B	22,23,3,11
Bobolink	<i>Dolichonyx oryzivorus</i>	C	S4B	N5B	23,3,22,11
Red-winged blackbird	<i>Agelaius phoeniceus</i>	A	S5B, S5N	N5B, N5N	
Eastern meadowlark	<i>Sturnella magna</i>	C	S4B, S4N	N5	22
Western meadowlark	<i>Sturnella neglecta</i>	C	S4B, S4N	N5	
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	CL	S3B, S4N	N5B, N5N	
Common grackle	<i>Quiscalus quiscula</i>	A	S5B, S5N	N5	
Great-tailed grackle	<i>Quiscalus mexicanus</i>	R	S?	N5	
Brown-headed cowbird	<i>Molothrus ater</i>	A	S5B, S5N	N5	
Orchard oriole	<i>Icterus spurius</i>	CL	S4B, S4N	N5B	22
Baltimore oriole	<i>Icterus galbula</i>	A	S5B, S5N	N5B	22,23
House finch	<i>Carpodacus mexicanus</i>	C	SE4	N5	
Red crossbill	<i>Loxia curvirostra</i>	R	SAB, S2N	N5	

Common Name	Scientific Name	Iowa Abundance	Iowa Status	National Status	Priority Status*
Pine siskin	<i>Carduelis pinus</i>	R	SAB, S5N	N5	
American goldfinch	<i>Carduelis tristis</i>	C	S5B, N5N	N5	
House sparrow	<i>Passer domesticus</i>	EX	SE5	NE5	
Eurasian tree sparrow	<i>Passer montanus</i>	R	SE	NE	

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APPENDIX 4. List of migratory birds considered by the IWAP.

Iowa Abundance: R = regular, C = casual, A = accidental, X = extirpated.

Priority status: in Bird Conservation Regions 11 (Prairie Pothole), 22 (Eastern Tallgrass Prairie), 23 (Prairie to Hardwood Transition), and 3 (FWS Region 3).

Taxonomic order derived from the American Ornithologists' Union Check-List of North American Birds, which can be accessed at: <http://www.aou.org/checklist/north/>

Common Name	Scientific Name	Iowa Abundance	Priority Status
Black-bellied whistling-duck	<i>Dendrocygna autumnalis</i>	A	
Taiga bean goose	<i>Anser fabalis</i>	A	
Greater white-fronted goose	<i>Anser albifrons</i>	R	
Snow goose	<i>Anser caerulescens</i>	R	
Ross's goose	<i>Anser rossii</i>	R	
Brant	<i>Branta bernicla</i>	A	
Tundra swan	<i>Cygnus columbianus</i>	R	
Eurasian wigeon	<i>Anas penelope</i>	A	
Cinnamon teal	<i>Anas cyanoptera</i>	R	
Garganey	<i>Anas querquedula</i>	A	
Greater scaup	<i>Aythya marila</i>	R	
King eider	<i>Somateria spectabilis</i>	A	
Common eider	<i>Somateria mollissima</i>	A	
Harlequin duck	<i>Histrionicus histrionicus</i>	A	
Surf scoter	<i>Melanitta perspicillata</i>	R	
White-winged scoter	<i>Melanitta fusca</i>	R	
Black scoter	<i>Melanitta nigra</i>	R	
Long-tailed duck	<i>Clangula hyemalis</i>	R	
Common goldeneye	<i>Bucephala clangula</i>	R	
Barrow's goldeneye	<i>Bucephala islandica</i>	A	
Common merganser	<i>Mergus merganser</i>	R	
Red-breasted merganser	<i>Mergus serrator</i>	R	
Red-throated loon	<i>Gavia stellata</i>	R	
Pacific loon	<i>Gavia pacifica</i>	R	
Yellow-billed loon	<i>Gavia adamsii</i>	A	
Horned grebe	<i>Podiceps auritus</i>	R	
Clark's grebe	<i>Aechmophorus clarkii</i>	C	
Brown pelican	<i>Pelecanus occidentalis</i>	A	
Neotropic cormorant	<i>Phalacrocorax brasilianus</i>	A	
Anhinga	<i>Anhinga anhinga</i>	A	
Magnificent frigatebird	<i>Fregata magnificens</i>	A	
Snowy egret	<i>Egretta thula</i>	R	
Tricolored heron	<i>Egretta tricolor</i>	A	
Reddish egret	<i>Egretta rufescens</i>	A	
White ibis	<i>Eudocimus albus</i>	A	
Glossy ibis	<i>Plegadis falcinellus</i>	A	
Roseate spoonbill	<i>Platalea ajaja</i>	A	
Wood stork	<i>Mycteria americana</i>	A	

Common Name	Scientific Name	Iowa Abundance	Priority Status
Black vulture	<i>Coragyps atratus</i>	A	
Northern goshawk	<i>Accipiter gentilis</i>	R	
Ferruginous hawk	<i>Buteo regalis</i>	A	11
Rough-legged hawk	<i>Buteo lagopus</i>	R	
Golden eagle	<i>Aquila chrysaetos</i>	R	
Gyr Falcon	<i>Falco rusticolus</i>	A	
Prairie falcon	<i>Falco mexicanus</i>	R	
Yellow rail	<i>Coturnicops noveboracensis</i>	R	11,3
Black rail	<i>Laterallus jamaicensis</i>	A	22,3
Purple gallinule	<i>Porphyrio martinica</i>	A	
Whooping crane	<i>Grus americana</i>	A	
Black-bellied plover	<i>Pluvialis squatarola</i>	R	
American golden-plover	<i>Pluvialis dominica</i>	U	
Snowy plover	<i>Charadrius alexandrinus</i>	A	
Semipalmated plover	<i>Charadrius semipalmatus</i>	R	
Black-necked stilt	<i>Himantopus mexicanus</i>	R	
American avocet	<i>Recurvirostra americana</i>	R	
Solitary sandpiper	<i>Tringa solitaria</i>	C	11
Greater yellowlegs	<i>Tringa melanoleuca</i>	C	22,23
Willet	<i>Catoptrophorus semipalmatus</i>	R	11
Lesser yellowlegs	<i>Tringa flavipes</i>	C	
Eskimo curlew	<i>Numenius borealis</i>	X	
Whimbrel	<i>Numenius phaeopus</i>	C	3
Hudsonian godwit	<i>Limosa haemastica</i>	U	11,22,23,3
Ruddy turnstone	<i>Arenaria interpres</i>	R	
Red knot	<i>Calidris canutus</i>	C	
Sanderling	<i>Calidris alba</i>	R	11
Semipalmated sandpiper	<i>Calidris pusilla</i>	R	
Western sandpiper	<i>Calidris mauri</i>	R	
Least sandpiper	<i>Calidris minutilla</i>	R	
White-rumped sandpiper	<i>Calidris fuscicollis</i>	R	11
Baird's sandpiper	<i>Calidris bairdii</i>	R	
Pectoral sandpiper	<i>Calidris melanotos</i>	R	
Sharp-tailed sandpiper	<i>Calidris acuminata</i>	A	
Dunlin	<i>Calidris alpina</i>	R	
Curlew sandpiper	<i>Calidris ferruginea</i>	A	
Stilt sandpiper	<i>Caladris himantopus</i>	R	22,23,3
Buff-breasted sandpiper	<i>Tryngites subruficollis</i>	R	11,22,23,3
Ruff	<i>Philomachus pugnax</i>	A	
Short-billed dowitcher	<i>Limnodromus griseus</i>	U	22,23,3
Long-billed dowitcher	<i>Limnodromus scolopaceus</i>	R	
Wilson's snipe	<i>Gallinago delicata</i>	R	
Red-necked phalarope	<i>Phalaropus lobatus</i>	R	
Red phalarope	<i>Phalaropus fulicaria</i>	C	

Common Name	Scientific Name	Iowa Abundance	Priority Status
Black-legged kittiwake	<i>Rissa tridactyla</i>	C	
Ivory gull	<i>Pagophila eburnea</i>	A	
Sabine's gull	<i>Xema sabini</i>	R	
Bonaparte's gull	<i>Larus philadelphia</i>	R	
Black-headed gull	<i>Larus ridibundus</i>	C	
Little gull	<i>Larus minutus</i>	A	
Ross's gull	<i>Rhodostethia rosea</i>	A	
Laughing gull	<i>Larus atricilla</i>	C	
Mew gull	<i>Larus canus</i>	C	
California gull	<i>Larus californicus</i>	C	
Herring gull	<i>Larus argentatus</i>	R	
Thayer's gull	<i>Larus thayeri</i>	R	
Iceland gull	<i>Larus glaucoides</i>	C	
Lesser black-backed gull	<i>Larus fuscus</i>	R	
Slaty-backed gull	<i>Larus schistisagus</i>	A	
Glaucous gull	<i>Larus hyperboreus</i>	R	
Great black-backed gull	<i>Larus marinus</i>	R	
Caspian tern	<i>Sterna caspia</i>	R	
Common tern	<i>Sterna hirundo</i>	R	22,23,3
Arctic tern	<i>Sterna paradisaea</i>	A	
Pomarine jaeger	<i>Stercorarius pomarinus</i>	A	
Parasitic jaeger	<i>Stercorarius parasiticus</i>	A	
Long-tailed jaeger	<i>Stercorarius longicaudus</i>	A	
Thick-billed murre	<i>Uria lomvia</i>	A	
Long-billed murrelet	<i>Brachyramphus perdix</i>	A	
Ancient murrelet	<i>Synthliboramphus antiquus</i>	A	
White-winged dove	<i>Zenaida asiatica</i>	A	
Common ground-dove	<i>Columbina passerina</i>	A	
Groove-billed ani	<i>Crotophaga sulcirostris</i>	A	
Snowy owl	<i>Nyctea scandiaca</i>	R	
Northern hawk owl	<i>Surnia ulula</i>	A	
Great gray owl	<i>Strix nebulosa</i>	A	
Northern saw-whet owl	<i>Aegolius acadicus</i>	R	
Rufous hummingbird	<i>Selasphorus rufus</i>	C	
Lewis's woodpecker	<i>Melanerpes lewis</i>	A	
Black-backed woodpecker	<i>Picoides arcticus</i>	A	
Olive-sided flycatcher	<i>Contopus cooperi</i>	R	
Western wood-pewee	<i>Contopus sordidulus</i>	A	
Yellow-bellied flycatcher	<i>Empidonax flaviventris</i>	R	
Alder Flycatcher	<i>Empidonax alnorum</i>	R	
Cordilleran flycatcher (formerly Western)	<i>Empidonax occidentalis</i> (formerly <i>difficilis</i>)	A	
Vermilion flycatcher	<i>Pyrocephalus rubinus</i>	A	
Northern shrike	<i>Lanius excubitor</i>	R	
Blue-headed vireo	<i>Vireo solitarius</i>	R	
Philadelphia vireo	<i>Vireo philadelphicus</i>	R	

Common Name	Scientific Name	Iowa Abundance	Priority Status
Gray jay	<i>Perisoreus canadensis</i>	A	
Pinyon jay	<i>Gymnorhinus cyanocephalus</i>	A	
Clark's nutcracker	<i>Nucifraga columbiana</i>	A	
Fish crow	<i>Corvus ossifragus</i>	A	
Common raven	<i>Corvus corax</i>	A	
Boreal chickadee	<i>Poecile hudsonica</i>	A	
Pygmy nuthatch	<i>Sitta pygmaea</i>	A	
Golden-crowned kinglet	<i>Regulus satrapa</i>	R	
Ruby-crowned kinglet	<i>Regulus calendula</i>	R	
Mountain bluebird	<i>Sialia currucoides</i>	C	
Townsend's solitaire	<i>Myadestes townsendi</i>	C	
Gray-cheeked thrush	<i>Catharus minimus</i>	R	
Swainson's thrush	<i>Catharus ustulatus</i>	R	
Hermit thrush	<i>Catharus guttatus</i>	R	
Varied thrush	<i>Zoothera naevia</i>	R	
Sage thrasher	<i>Oreoscoptes montanus</i>	A	
Curve-billed thrasher	<i>Toxostoma curvirostre</i>	A	
American pipit	<i>Anthus rubescens</i>	R	
Sprague's pipit	<i>Anthus spragueii</i>	A	11
Bohemian waxwing	<i>Bombycilla garrulus</i>	C	
Tennessee warbler	<i>Vermivora peregrina</i>	R	
Orange-crowned warbler	<i>Vermivora celata</i>	R	
Nashville warbler	<i>Vermivora ruficapilla</i>	R	
Magnolia warbler	<i>Dendroica magnolia</i>	R	
Cape May warbler	<i>Dendroica tigrina</i>	R	3
Black-throated blue warbler	<i>Dendroica caerulescens</i>	R	3
Yellow-rumped warbler	<i>Dendroica coronata</i>	R	
Black-throated gray warbler	<i>Dendroica nigrescens</i>	A	
Black-throated green warbler	<i>Dendroica virens</i>	R	
Townsend's warbler	<i>Dendroica townsendi</i>	A	
Blackburnian warbler	<i>Dendroica fusca</i>	R	
Pine warbler	<i>Dendroica pinus</i>	R	
Palm warbler	<i>Dendroica palmarum</i>	R	
Bay-breasted warbler	<i>Dendroica castanea</i>	R	
Blackpoll warbler	<i>Dendroica striata</i>	R	
Northern waterthrush	<i>Seiurus noveboracensis</i>	R	
Connecticut warbler	<i>Oporornis agilis</i>	R	3
Mourning warbler	<i>Oporornis philadelphia</i>	R	
Macgillivray's warbler	<i>Oporornis tolmiei</i>	A	
Wilson's warbler	<i>Wilsonia pusilla</i>	R	
Canada warbler	<i>Wilsonia canadensis</i>	U	3
Western tanager	<i>Piranga ludoviciana</i>	C	
Green-tailed towhee	<i>Pipilo chlorurus</i>	A	
Spotted towhee	<i>Pipilo maculatus</i>	R	
American tree sparrow	<i>Spizella arborea</i>	R	

Common Name	Scientific Name	Iowa Abundance	Priority Status
Black-throated sparrow	<i>Amphispiza bilineata</i>	A	
Lark bunting	<i>Calamospiza melanocorys</i>	A	
Le Conte's sparrow	<i>Ammodramus leconteii</i>	U	11,22,3
Nelson's sparrow	<i>Ammodramus nelsoni</i>	R	11,22,3
Fox sparrow	<i>Passerella iliaca</i>	R	
Lincoln's sparrow	<i>Melospiza lincolni</i>	R	
White-throated sparrow	<i>Zonotrichia albicollis</i>	R	
Harris's sparrow	<i>Zonotrichia querula</i>	R	
White-crowned sparrow	<i>Zonotrichia leucophrys</i>	R	
Golden-crowned sparrow	<i>Zonotrichia atricapilla</i>	A	
Dark-eyed junco	<i>Junco hyemalis</i>	R	
Lapland longspur	<i>Calcarius lapponicus</i>	R	
Smith's longspur	<i>Calcarius pictus</i>	R	22
Chestnut-collared longspur	<i>Calcarius ornatus</i>	A	11
Snow bunting	<i>Plectrophenax nivalis</i>	R	
Black-headed grosbeak	<i>Pheucticus melanocephalus</i>	A	
Lazuli bunting	<i>Passerina amoena</i>	C	
Painted bunting	<i>Passerina ciris</i>	A	
Rusty blackbird	<i>Euphagus carolinus</i>	U	3,22
Brewer's blackbird	<i>Euphagus cyanocephalus</i>	R	
Bullock's oriole	<i>Icterus bullockii</i>	A	
Gray-crowned rosy-finch	<i>Leucosticte tephrocotis</i>	A	
Pine grosbeak	<i>Pinicola enucleator</i>	C	
Purple finch	<i>Carpodacus purpureus</i>	R	
White-winged crossbill	<i>Loxia leucoptera</i>	R	
Common redpoll	<i>Carduelis flammea</i>	R	
Hoary redpoll	<i>Carduelis hornemanni</i>	A	
Lesser goldfinch	<i>Carduelis psaltria</i>	A	
Evening grosbeak	<i>Coccothraustes vespertinus</i>	C	

APPENDIX 5. List of Iowa mammals considered by the IWAP.

Iowa Abundance: A = abundant, CL = common locally, U = uncommon, R = rare, V = vagrant, X = extirpated, RI = re-introduced, I = introduced, D = domestic.

Iowa Trend: K = unknown, I = increasing, S = stable, D = decreasing, NA = not applicable, V = vagrant.

See Appendix 11 for definitions of NatureServe Iowa and National rankings.

The taxonomic order follows that of Mammal Species of the World* used by the Smithsonian Institution's National Museum of Natural History, which can be accessed at:

<http://www.mnh.si.edu/>

Common Name	Scientific Name	Iowa Abundance	Iowa Trend	Iowa Rank/ Listing	National Rank
Virginia opossum	<i>Didelphis virginiana</i>	A	S	S5	N5
Nine-banded armadillo	<i>Dasypus novemcinctus</i>	R	V	SA	N5
Northern short-tailed shrew	<i>Blarina brevicauda</i>	A	S	S5	N5
Elliot's short-tailed shrew	<i>Blarina hylophaga</i>	CL	K	S4	?
Least shrew	<i>Cryptotis parva</i>	R	K	S3 Threatened	N5
Pygmy shrew	<i>Microsorex hoyi</i>	X	NA	SU	G5
Masked shrew	<i>Sorex cinereus</i>	CL	K	S4	N5
Hayden's shrew	<i>Sorex haydeni</i>	CL	K	S4	N4
Eastern mole	<i>Scalopus aquaticus</i>	A	S	S5 S	N5
Big brown bat	<i>Eptesicus fuscus</i>	CL	S	S4	N5
	<i>Lasionycteris</i>				
Silver-haired bat	<i>noctivagans</i>	CL	S	S4	N5
Red bat	<i>Lasiurus borealis</i>	A	S	S4	N5
Hoary bat	<i>Lasiurus cinereus</i>	A	S	S4	N5
Little brown bat	<i>Myotis lucifugus</i>	CL	K	S4	N5
Northern myotis	<i>Myotis septentrionalis</i>	CL	K	S4	N4
Indiana bat	<i>Myotis sodalis</i>	R	K	S1 Endangered	N2
Evening bat	<i>Nycticeius humeralis</i>	CL	K	S3 Threatened	N5
Eastern pipistrelle	<i>Perimyotis subflavus</i>	CL	K	S4	N5
	<i>Nyctinomops</i>				
Big freetail bat	<i>macrotis</i>	R	V	SA	N3,N4
Brazilian (Mexican) freetailed bat	<i>Tadarida brasiliensis</i>	R	V	No	N5
Coyote	<i>Canis latrans</i>	A	S	S5	N5
Gray wolf	<i>Canis lupus</i>	X	V	SX	N4
	<i>Urocyon</i>				
Gray fox	<i>cinereoargenteus</i>	U	K	S4	N5
Swift fox	<i>Vulpes velox</i>	X	NA	SX	N3
Red fox	<i>Vulpes vulpes</i>	A	S	S4	N5

Common Name	Scientific Name	Iowa Abundance	Iowa Trend	Iowa Rank/ Listing	National Rank
Feral dog	<i>Canis familiaris</i>	D	S	SE	NE
Feral cat	<i>Felis catus</i>	D	S	SE	NE
Mountain lion	<i>Felis concolor</i>	X	V	SX	N5
Canada lynx	<i>Lynx canadensis</i>	X	NA	SX	N5
Bobcat	<i>Lynx rufus</i>	U	I	S3	N5
River otter	<i>Lutra canadensis</i>	RI	I	S3	N5
Striped skunk	<i>Mephitis mephitis</i>	A	S	S5	N5
Spotted skunk	<i>Spilogale putorius</i>	R	D	S1 Endangered	N5
Wolverine	<i>Gulo gulo</i>	X	NA	SX	N4
American marten	<i>Martes americana</i>	X	NA	SX	N5
Fisher	<i>Martes pennanti</i>	X	NA	SX	N5
Ermine	<i>Mustela erminea</i>	CL	K	S4	N5
Long-tailed weasel	<i>Mustela frenata</i>	R	K	S4	N5
Least weasel	<i>Mustela nivalis</i>	R	K	S4	N5
Mink	<i>Mustela vison</i>	A	S	S4	N5
Badger	<i>Taxidea taxus</i>	CL	S	S4	N5
Raccoon	<i>Procyon lotor</i>	A	S	S5	N5
Black bear	<i>Ursus americanus</i>	X	V	SX	N5
Moose	<i>Alces alces</i>	X	NA	SZ	N5
Mule deer	<i>Odocoileus hemionus</i>	R	V	SZ	N5
White-tailed deer	<i>Odocoileus virginianus</i>	A	I	S5	N5
Wapiti (elk)	<i>Cervus canadensis</i>	X	NA	SX	N5
Pronghorn	<i>Antilocapra americana</i>	X	NA	SX	N5
Bison	<i>Bison bison</i>	X	NA	SX	N4
Black-tailed prairie dog	<i>Cynomys ludovicianus</i>	I-unsuccessful	NA	SZ	N5
Woodchuck	<i>Marmota monax</i>	A	S	S5	N5
Gray squirrel	<i>Sciurus carolinensis</i>	CL	S	S5	N5
Fox squirrel	<i>Sciurus niger</i>	A	S	S5	N5
Franklin's ground squirrel	<i>Spermophilus franklinii</i>	R	D	S3	N5
Richardson's Ground Squirrel	<i>Spermophilus richardsonii</i>	V	K	S2	N5
Thirteen-lined ground squirrel	<i>Spermophilus tridecemlineatus</i>	A	S	S5	N5
Eastern chipmunk	<i>Tamias striatus</i>	A	S	S5	N5
Red squirrel	<i>Tamiasciurus hudsonicus</i>	CL	S	S3	N5
Southern Flying Squirrel	<i>Glaucomys volans</i>	U	K	S4	N5
Beaver	<i>Caster canadensis</i>	A	S	S5	N5

Common Name	Scientific Name	Iowa Abundance	Iowa Trend	Iowa Rank/ Listing	National Rank
Plains pocket gopher	<i>Geomys bursarius</i>	A	S	S5	N5
Plains pocket mouse	<i>Perognathus flavescens</i>	R	K	S2	N5
Meadow jumping mouse	<i>Zapus hudsonius</i>	CL	S	S4	N5
Red-backed vole	<i>Clethrionomys gapperi</i>	R	D	S2	N5
Prairie vole	<i>Microtus ochrogaster</i>	U	S	S3	N5
Meadow vole	<i>Microtus pennsylvanicus</i>	A	S	S5	N5
Woodland vole	<i>Microtus pinetorum</i>	R	K	S3	N5
Muskrat	<i>Ondatra zibethicus</i>	A	S	S5	N5
Southern bog lemming	<i>Synaptomys cooperi</i>	R	D	S3 Threatened	N5
House mouse	<i>Mus musculus</i>	I	S	SE	NE
Norway rat	<i>Rattus norvegicus</i>	I	S	SE	NE
Eastern woodrat	<i>Neotoma floridana</i>	X	NA	SX	N5
Northern grasshopper mouse	<i>Onychomys leucogaster</i>	U	K	S3	N5
Marsh rice rat	<i>Oryzomys palustris</i>	X	NA	No	N5
White-footed mouse	<i>Peromyscus leucopus</i>	CL	S	S5	N5
Deer mouse	<i>Peromyscus maniculatus</i>	A	S	S5	N5
Western harvest mouse	<i>Reithrodontomys megalotis</i>	A	S	S4	N5
Hispid cotton rat	<i>Sigmodon hispidus</i>	R	V	SU	N5
Porcupine	<i>Erethizon dorsatum</i>	X	NA	SX	N5
Nutria (Coypu)	<i>Myocaster coypus</i>	I	V	SE	NE
White-tailed jackrabbit	<i>Lepus townsendii</i>	R	D	S3	N5
Eastern cottontail	<i>Sylvilagus floridanus</i>	A	V	S5	N5

* Wilson, D.E. and D.M. Reeder (editors). 2005. Mammal Species of the World: A Taxonomic and Geographic Reference (3rd Ed.) Johns Hopkins University Press. 2,142 pp.

APPENDIX 6. List of Iowa fish considered by the IWAP.

Iowa Abundance: K = unknown, A = abundant, C = common locally,
 U = uncommon, R = rare, X = possibly extirpated.
 Iowa trend: K = unknown, I = increasing, S = stable, D = decreasing.
 See Appendix 11 for definitions of NatureServe Iowa and National rankings.
 Taxonomic order derived from Nelson et al. (2004).*

Common Name	Scientific Name	Iowa Abundance	Iowa Trend	State Rank	National Rank
Lampreys: Petromyzontidae					
Chestnut lamprey	<i>Ichthyomyzon castaneus</i>	R	K	S2 Threatened	N4
Northern brook lamprey	<i>Ichthyomyzon fossor</i>	R	K	S?	N4
Silver lamprey	<i>Ichthyomyzon unicuspis</i>	U	K	S3	N5
American brook lamprey	<i>Lampetra appendix</i>	C	K	S3 Threatened	N4
Sturgeons: Acipenseridae					
Lake sturgeon	<i>Acipenser fulvescens</i>	R	K	S1 Endangered	N3N4
Pallid sturgeon	<i>Scaphirhynchus albus</i>	R	D	S1 Endangered	N1
Shovelnose sturgeon	<i>Scaphirhynchus platyrhynchus</i>	C	S	S4	N4
Paddlefishes: Polyodontidae					
Paddlefish	<i>Polyodon spathula</i>	C	S	S3	N4
Gars: Lepisosteidae					
Spotted gar	<i>Lepisosteus oculatus</i>	K	K	S3	N5
Longnose gar	<i>Lepisosteus osseus</i>	C	S	S3	N5
Shortnose gar	<i>Lepisosteus platostomus</i>	A	S	S4	N5
Bowfins: Amiidae					
Bowfin	<i>Amia calva</i>	C	S	S3	N5
Mooneyes: Hiodontidae					
Goldeye	<i>Hiodon alosoides</i>	U	K	S3	N5
Mooneye	<i>Hiodon tergisus</i>	C	S	S4	N5
Freshwater eels: Anguillidae					
American eel	<i>Anguilla rostrata</i>	R	D	S2	N5
Herrings: Clupeidae					
Alabama shad	<i>Alosa alabamae</i>	X		SH	N3
Skipjack herring	<i>Alosa chrysochloris</i>	U	K	S3	N5
Gizzard shad	<i>Dorosoma cepedianum</i>	A	I	S5	N5
Carp and minnows: Cyprinidae					
Central stoneroller	<i>Campostoma anomalum</i>	C	S	S5	N5
Largescale stoneroller	<i>Campostoma oligolepis</i>	U	K	S3	N5
Goldfish	<i>Carassius auratus</i>	C	K	SE	NE
Redside dace	<i>Clinostomus elongatus</i>	X		SX	N4
Lake chub	<i>Couesius plumbeus</i>	X		SX	N5

Common Name	Scientific Name	Iowa Abundance	Iowa Trend	State Rank	National Rank
Grass Carp	<i>Ctenopharyngodon idella</i>	C	I	SE	NE
Red shiner	<i>Cyprinella lutrensis</i>	A	S	S5	N5
Spotfin shiner	<i>Cyprinella spiloptera</i>	A	S	S5	N5
Common Carp	<i>Cyprinus carpio</i>	A	S	SE	NE
Gravel chub	<i>Erimystax x-punctatus</i>	U	K	S3	N4
Western silvery minnow	<i>Hybognathus argyritis</i>	K	K	S1	N4
Brassy minnow	<i>Hybognathus hankinsoni</i>	C	K	S5	N5
Mississippi silvery minnow	<i>Hybognathus nuchalis</i>	C	K	S3	N5
Plains minnow	<i>Hybognathus placitus</i>	C	S	S4	N4
Pallid shiner	<i>Hybopsis amnis</i>	R	D	S2	N4
Silver Carp	<i>Hypophthalmichthys molitrix</i>	C	I	SE	NE
Bighead Carp	<i>Hypophthalmichthys nobilis</i>	C	I	SE	NE
Common shiner	<i>Luxilus cornutus</i>	A	S	S5	N5
Redfin shiner	<i>Lythrurus umbratilis</i>	U	D	S2	N5
Shoal chub	<i>Macrhybopsis hyostomus</i>	C	S	S3	N5
Sturgeon chub	<i>Macrhybopsis gelida</i>	R	K	SH	N3
Sicklefin chub	<i>Macrhybopsis meeki</i>	R	K	S1?	N3
Silver chub	<i>Macrhybopsis storeriana</i>	C	S	S5	N5
Pearl dace	<i>Margariscus margarita</i>	X		S1 Endangered	N5
Hornyhead chub	<i>Nocomis biguttatus</i>	U	K	S5	N5
Golden shiner	<i>Notemigonus crysoleucas</i>	C	S	S4	N5
Pugnose shiner	<i>Notropis anogenus</i>	R	K	S1 Endangered	N3
Emerald shiner	<i>Notropis atherinoides</i>	A	S	S5	N5
River shiner	<i>Notropis blennius</i>	A	S	S5	N5
Ghost shiner	<i>Notropis buchanani</i>	R	D	S2	N5
Ironcolor shiner	<i>Notropis chalybaeus</i>	X		SX	N4
Bigmouth shiner	<i>Notropis dorsalis</i>	A	S	S5	N5
Blackchin shiner	<i>Notropis heterodon</i>	X		SX	N5
Blacknose shiner	<i>Notropis heterolepis</i>	R	K	S2 Threatened	N4
Spottail shiner	<i>Notropis hudsonius</i>	C	S	S?	N5
Ozark minnow	<i>Notropis nubilus</i>	U	K	S3	N5
Carmine shiner	<i>Notropis percobromus</i>	C	K	S5	N5
Silverband shiner	<i>Notropis shumardi</i>	X		SX	N5
Sand shiner	<i>Notropis stramineus</i>	A	S	S5	S5
Weed shiner	<i>Notropis texanus</i>	R	D	S2 Endangered	N5
Topeka shiner	<i>Notropis topeka</i>	R	D	S3 Threatened	N3
Mimic shiner	<i>Notropis volucellus</i>	A	I	S4	N5
Channel shiner	<i>Notropis wickliffi</i>	U	K	S5	N5
Pugnose minnow	<i>Opsopoeodus emiliae</i>	U	K	S3	N5
Suckermouth minnow	<i>Phenacobius mirabilis</i>	U	K	S4	N5
Southern redbelly dace	<i>Phoxinus erythrogaster</i>	C	D	S4	N5

Common Name	Scientific Name	Iowa Abundance	Iowa Trend	State Rank	National Rank
Bluntnose minnow	<i>Pimephales notatus</i>	A	S	S5	N5
Fathead minnow	<i>Pimephales promelas</i>	A	S	S5	N5
Bullhead minnow	<i>Pimephales vigilax</i>	C	K	S4	N5
Flathead chub	<i>Platygobio gracilis</i>	C	D	S3	N5
Western blacknose dace	<i>Rhinichthys obtusus</i>	C	K	S5	N5
Longnose dace	<i>Rhinichthys cataractae</i>	C	K	S3	N5
Creek chub	<i>Semotilus atromaculatus</i>	C	S	S5	N5
Suckers: Catostomidae					
River carpsucker	<i>Carpionodes carpio</i>	A	S	S5	N5
Quillback	<i>Carpionodes cyprinus</i>	A	S	S5	N5
Highfin carpsucker	<i>Carpionodes velifer</i>	C	K	S4	N4N5
White sucker	<i>Catostomus commersonii</i>	A	S	S5	N5
Blue sucker	<i>Cycleptus elongatus</i>	C	D	S3	N3
Lake chubsucker	<i>Erimyzon sucetta</i>	X		SX	N5
Northern hog sucker	<i>Hypentelium nigricans</i>	A	S	S4	N5
Smallmouth buffalo	<i>Ictiobus bubalus</i>	A	S	S5	N5
Bigmouth buffalo	<i>Ictiobus cyprinellus</i>	A	S	S5	N5
Black buffalo	<i>Ictiobus niger</i>	U	K	S3	N5
Spotted sucker	<i>Minytrema melanops</i>	C	S	S3	N5
Silver redhorse	<i>Moxostoma anisurum</i>	U	S	S4	N5
River redhorse	<i>Moxostoma carinatum</i>	R	K	S1	N4
				S3	
Black redhorse	<i>Moxostoma duquesnei</i>	U	S	Threatened	N5
Golden redhorse	<i>Moxostoma erythrurum</i>	C	S	S4	N5
Shorthead redhorse	<i>Moxostoma macrolepidotum</i>	A	S	S5	N5
Greater redhorse	<i>Moxostoma valenciennesi</i>	X	K	SX	N4
North American catfishes: Ictaluridae					
Black bullhead	<i>Ameiurus melas</i>	A	S	S5	N5
Yellow bullhead	<i>Ameiurus natalis</i>	C	K	S4	N5
Brown bullhead	<i>Ameiurus nebulosus</i>	R	D	S2	N5
Blue catfish	<i>Ictalurus furcatus</i>	U	K	S3	N5
Channel catfish	<i>Ictalurus punctatus</i>	A	S	S5	N5
Slender madtom	<i>Noturus exilis</i>	U	S	S3	N5
Stonecat	<i>Noturus flavus</i>	C	S	S5	N5
Tadpole madtom	<i>Noturus gyrinus</i>	U	D	S3	N5
				S2	
Freckled madtom	<i>Noturus nocturnus</i>	R	K	Endangered	N5
Flathead catfish	<i>Pylodictus olivaris</i>	C	D	S4	N5
Pikes: Esocidae					
				S3	
Redfin pickerel	<i>Esox americanus</i>	U	S	Threatened	N5
Northern pike	<i>Esox lucius</i>	A	S	S5	N5
Muskellunge	<i>Esox masquinongy</i>	C	S	S5	N5
Mudminnows: Umbridae					
Central mudminnow	<i>Umbra limi</i>	U	S	S3	N5
Trouts and salmon: Salmonidae					
Rainbow trout	<i>Oncorhynchus mykiss</i>	C	S	SE	N5

Common Name	Scientific Name	Iowa Abundance	Iowa Trend	State Rank	National Rank
Brown trout	<i>Salmo trutta</i>	C	S	SE	NE
Brook trout	<i>Salvelinus fontinalis</i>	U	S	S3	N5
Trout-perches: Percopsidae					
Trout-perch	<i>Percopsis omiscomaycus</i>	U	D	S3	N5
Pirate perches: Aphredoderidae					
Pirate perch	<i>Aphredoderus sayanus</i>	R	D	S2	N5
Cods: Gadidae					
Burbot	<i>Lota lota</i>	U	D	S3 Threatened	N5
New World silversides: Atherinopsidae					
Brook silverside	<i>Labidesthes sicculus</i>	C	K	S4	N5
Topminnows: Fundulidae					
Banded killifish	<i>Fundulus diaphanus</i>	U	D	S2	N5
Starhead topminnow	<i>Fundulus dispar</i>	X		SX	N4
Blackstripe topminnow	<i>Fundulus notatus</i>	U	D	S3	N5
Plains topminnow	<i>Fundulus sciadicus</i>	R	K	SH	N4
Livebearers: Poeciliidae					
Western mosquitofish	<i>Gambusia affinis</i>	C	K	SE	N5
Sticklebacks: Gasterosteidae					
Brook stickleback	<i>Culaea inconstans</i>	C	K	S4	N5
Sculpins: Cottidae					
Mottled sculpin	<i>Cottus bairdii</i>	R	K	S2	N5
Slimy sculpin	<i>Cottus cognatus</i>	U	K	S3	N5
Temperate basses: Moronidae					
White bass	<i>Morone chrysops</i>	A	S	S4	N5
Yellow bass	<i>Morone mississippiensis</i>	A	I	S4	N5
Striped bass	<i>Morone saxatilis</i>	K	K	SE	N5
Sunfishes: Centrarchidae					
Rock Bass	<i>Ambloplites rupestris</i>	C	K	S4	N5
Green sunfish	<i>Lepomis cyanellus</i>	C	S	S5	N5
Pumpkinseed	<i>Lepomis gibbosus</i>	C	K	S4	N5
Warmouth	<i>Lepomis gulosus</i>	C	K	S4	N5
Orangespotted sunfish	<i>Lepomis humilis</i>	C	K	S5	N5
Bluegill	<i>Lepomis macrochirus</i>	A	S	S5	N5
Longear sunfish	<i>Lepomis megalotis</i>	X		SX	N5
Redear sunfish	<i>Lepomis microlophus</i>	C	S	SE	N5
Smallmouth bass	<i>Micropterus dolomieu</i>	C	S	S5	N5
Spotted bass	<i>Micropterus punctulatus</i>	C	K	SE	N5
Largemouth bass	<i>Micropterus salmoides</i>	A	S	S5	N5
White crappie	<i>Pomoxis annularis</i>	A	S	S5	N5
Black crappie	<i>Pomoxis nigromaculatus</i>	A	S	S5	N5
Perches: Percidae					
Western sand darter	<i>Ammocrypta clara</i>	U	S	S2 Threatened	N3
Crystal darter	<i>Crystallaria asprella</i>	R	K	S1	N3
Mud darter	<i>Etheostoma asprigene</i>	U	S	S3	N4N5
Rainbow darter	<i>Etheostoma caeruleum</i>	C	K	S4	N5

Common Name	Scientific Name	Iowa Abundance	Iowa Trend	State Rank	National Rank
Bluntnose darter	<i>Etheostoma chlorosoma</i>	R	K	S1 Endangered	N5
Iowa darter	<i>Etheostoma exile</i>	C	K	S4	N5
Fantail darter	<i>Etheostoma flabellare</i>	C	K	S4	N5
Least darter	<i>Etheostoma microperca</i>	R	K	S1 Endangered	N5
Johnny darter	<i>Etheostoma nigrum</i>	C	S	S5	N5
Orangethroat darter	<i>Etheostoma spectabile</i>	U	K	S2 Threatened	N5
Banded darter	<i>Etheostoma zonale</i>	U	K	S3	N5
Yellow perch	<i>Perca flavescens</i>	C	K	S5	N5
Logperch	<i>Percina caprodes</i>	C	S	S3	N5
Gilt darter	<i>Percina evides</i>	X		SX	N4
Blackside darter	<i>Percina maculata</i>	C	D	S3	N5
Slenderhead darter	<i>Percina phoxocephala</i>	U	K	S3	N5
River darter	<i>Percina shumardi</i>	C	S	S3	N5
Sauger	<i>Sander canadensis</i>	C	K	S4	N5
Walleye	<i>Sander vitreus</i>	A	S	S5	N5
Drums and croakers: Sciaenidae					
Freshwater drum	<i>Aplodinotus grunniens</i>	C	S	S5	N5

*Nelson, J.S., E.J. Crossman, H. Espinosa-Perez, L.T. Finley, C.R. Gilbert, R.N. Lea, and J.D. Williams. 2004. Common and scientific names of fishes from the United States, Canada, and Mexico. American Fisheries Society, Special Publication 29, Bethesda, MD.

APPENDIX 7. List of Iowa amphibians and reptiles considered by the IWAP.

Iowa Trend: K = unknown, I = increasing, S = stable, D = decreasing

See Appendix 11 definitions of NatureServe Iowa and National Status rankings.

Taxonomic order derived from the Society for the Study of Amphibians and Reptiles

Standard English and Scientific Names Committee, which can be accessed at:

http://www.ssarherps.org/pages/comm_names/Index.php

Common Name	Scientific Name	Iowa Status	Iowa Trend	State Rank	National Rank
Mudpuppy	<i>Necturus maculosus</i>	Threatened	D	S2	N5
Central Newt	<i>Notophthalmus viridescens v. louisianensis</i>	Threatened	S	S2	N5
Tiger Salamander	<i>Ambystoma tigrinum</i>		D	S4	N5
Smallmouth Salamander	<i>Ambystoma texanum</i>		S	S3	N5
Blue-spotted Salamander	<i>Ambystoma laterale</i>	Endangered	S	S1	N5
Northern Leopard Frog	<i>Lithobates pipiens</i>		S	S5	N5
Plains Leopard Frog	<i>Lithobates blairi</i>		S	S5	N5
Southern Leopard Frog	<i>Lithobates sphenoccephalus</i>		S	S4	N5
Pickerel Frog	<i>Lithobates palustris</i>		S	S5	N5
Crawfish Frog	<i>Lithobates areolata</i>	Endangered	D	S1	N4
Green Frog	<i>Lithobates clamitans</i>		S	S5	N5
American bullfrog	<i>Lithobates catesbeianus</i>		I	S5	N5
Gray Treefrog	<i>Hyla versicolor</i>		S	S5	N5
Cope's Gray Treefrog	<i>Hyla chrysoscelis</i>		S	S5	N5
Spring Peeper	<i>Pseudacris crucifer</i>		S	S5	N5
Western Chorus Frog	<i>Pseudacris triseriata</i>		S	S5	N5
Cricket Frog	<i>Acris crepitans</i>		D	S3	N5
American Toad	<i>Anaxyrus americanus</i>		I	S5	N5
Woodhouse's Toad	<i>Anaxyrus woodhousii</i>		S	S4	N5
Fowler's Toad	<i>Anaxyrus fowleri</i>		S	S4	N5
Great Plains Toad	<i>Anaxyrus cognatus</i>		D	S3	N5
Plains Spadefoot Toad	<i>Spea bombifrons</i>		S	S4	N5
Ornate Box Turtle	<i>Terrapene ornata</i>	Threatened	S	S2	N5
Western Painted Turtle	<i>Chrysemys picta belli</i>		I	S5	N5
Red-eared slider	<i>Trachemys scripta elegans</i>		S	S4	N5
Map Turtle	<i>Graptemys geographica</i>		S	S4	N5
False Map Turtle	<i>Graptemys pseudogeographica</i>		S	S4	N5
Blanding' Turtle	<i>Emydoidea blandingii</i>	Threatened	D	S2	N4
Wood Turtle	<i>Glyptemys insculpta</i>	Endangered	K	S1	N4
Snapping Turtle	<i>Chelydra serpentina</i>		S	S5	N5

Common Name	Scientific Name	Iowa Status	Iowa Trend	State Rank	National Rank
Alligator Snapping Turtle	<i>Macrochelys temminckii</i>		K	SU	N3, N4
Yellow Mud Turtle	<i>Kinosternon flavescens</i>	Endangered	D	S1	N5
Common Musk Turtle	<i>Sternotherus odoratus</i>	Threatened	D	S2	N5
Spiny Softshell Turtle	<i>Apalone spinifera</i>		D	S4	N5
Smooth Softshell Turtle	<i>Apalone mutica</i>		D	S4	N5
Slender Glass Lizard	<i>Ophisaurus attenuatus</i>	Threatened	D	S2	N5
Six-Lined Racerunner	<i>Aspidozelis sexlineata</i>		D	S3	N5
Northern Prairie Skink	<i>Plestiodon septentrionalis</i>		D	S3	N5
Five-Lined Skink	<i>Plestiodon faciatus</i>		S	S4	N5
Great Plains Skink	<i>Plestiodon obsoletus</i>	Endangered	D	S1	N5
Northern Water Snake	<i>Nerodia sipedon</i>		D	S5	N5
Diamond-backed Water Snake	<i>Nerodia rhombifer</i>	Threatened	D	S2	N5
Yellowbelly Water Snake	<i>Nerodia erythrogaster flavigaster</i>		D	S1	N5
Copperbelly Water Snake	<i>Nerodia erythrogaster neglecta</i>	Endangered	D	S1	N5
Graham's Crayfish Snake	<i>Regina grahamii</i>		D	S4	N5
Dekay's Brownsnake	<i>Storeria dekayi</i>		S	S5	N5
Northern Red-bellied Snake	<i>Storeria occipitomaculata</i>		S	S4	N5
Smooth Earthsnake	<i>Virginia valeriae</i>		S	S3	N5
Lined Snake	<i>Tropidoclonion lineatum</i>		S	S4	N5
Eastern Gartersnake	<i>Thamnophis sirtalis sirtalis</i>		S	S5	N5
Red-Sided Gartersnake	<i>Thamnophis sirtalis parietalis</i>		S	S5	N5
Plains Gartersnake	<i>Thamnophis radix</i>		S	S5	N5
Western Ribbonsnake	<i>Thamnophis proximus</i>		S	S5	N5
Western Wormsnake	<i>Carphophis vermis</i>	Threatened	D	S2	N5
Smooth Greensnake	<i>Opheodrys vernalis</i>	Special Concern	S	S3	N5
Rough Greensnake	<i>Opheodrys aestivus</i>		K	SR	N5
Prairie Ring-necked Snake	<i>Diadophis punctatus arnyi</i>		D	S4	N5
Blue Racer	<i>Coluber constrictor foxii</i>		D	S4	N5
Eastern Yellow-bellied Racer	<i>Coluber constrictor flaviventris</i>		D	S4	N5
Milksnake	<i>Lampropeltis triangulum</i>		D	S4	N5
Prairie Kingsnake	<i>Lampropeltis calligaster calligaster</i>		D	S3	N5
Speckled Kingsnake	<i>Lampropeltis getula holbrooki</i>	Threatened	D	S1	N5
Bullsnake	<i>Pituophis catenifer sayi</i>	Special Concern	D	S3	N5
Western Foxsnake	<i>Pantherophis vulpinus</i>		S	S5	N5

Common Name	Scientific Name	Iowa Status	Iowa Trend	State Rank	National Rank
Black (Texas) Rat Snake	<i>Pantherophis obsoletus</i>		S	S5	N5
Eastern Hog-nosed Snake	<i>Heterodon platirhinos</i>		S	S4	N5
Plains Hog-nosed Snake	<i>Heterodon nasicus</i>	Endangered	K	S1	N5
Eastern Massasauga Rattlesnake	<i>Sistrurus catenatus catenatus</i>	Endangered (Federal Candidate Sp.)	D	S1	N3, N4
Timber Rattlesnake	<i>Crotalus horridus</i>		D	S3	N5
Prairie Rattlesnake	<i>Crotalus viridis</i>	Endangered	K	S1	N5
Copperhead	<i>Agkistrodon contortrix</i>	Endangered	D	S1	N5

APPENDIX 8. List of Iowa mussels considered by the IWAP.

Listing: N = not listed, S = special concern, T = Threatened, E = endangered,
X = extirpated.

Iowa Abundance: A = abundant, C = common locally, U = uncommon, R = rare, K = unknown,
X = possibly extirpated.

Iowa Trend: I = increasing, S = stable, D = decreasing, K = unknown.

See Appendix 11 definitions of NatureServe Iowa and National Status rankings.

Taxonomic order derived from D. D. Turgeon, J. F. Quinn Jr., A. E. Bogan, E. V. Coan, F. G. Hochberg, Jr., W. G. Lyons, P. M. Mikkelsen, R. J. Neves, C. F. E. Roper, G. Rosenberg, B. Roth, A. Scheltema, F. G. Thompson, M. Vecchione & J. D. Williams. 1998. Common and scientific names of aquatic invertebrates from the United States and Canada: Mollusks. 2nd Edition. American Fisheries Society, Special Publication 26, Bethesda, Maryland. ix + 526 pp

Common Name	Scientific Name	Listing	Iowa Abundance	Iowa Trend	State Rank	National Rank
	Order: Unionoida					
	Family: Unionidae					
Mucket	<i>Actinonaias ligamentina</i>	N	U	D	S3	N5
Elktoe	<i>Alasmidonta marginata</i>	N	U	D	S3	N4
Slippershell	<i>Alasmidonta viridis</i>	E	R	D	S1	N4
Three ridge	<i>Amblema plicata</i>	N	C	D	S4	N5
Flat floater	<i>Anodonta suborbiculata</i>	N	R	D	S1	N5
Cylinder (Cylindrical papershell)	<i>Anodontoides ferussacianus</i>	T	R	D	S2	N5
Rock pocketbook	<i>Arcidens confragosus</i>	N	U	D	S3	N4
Spectacle case	<i>Cumberlandia monodonta</i>	E	R	D	S1	N2N3
Purple pimpleback (Purple wartyback)	<i>Cyclonaias tuberculata</i>	T	R/X?	D	S1	N5
Butterfly	<i>Ellipsaria lineolata</i>	T	U	K	S2S3	N4
Elephant ear	<i>Elliptio crassidens</i>	X	X		SX	N5
Spike	<i>Elliptio dilatata</i>	N	U	D	S2	N5
Snuffbox	<i>Epioblasma triquetra</i>	X	X		SX	N3
Ebonyshell	<i>Fusconaia ebena</i>	X	R	D	S1	N4N5
Wabash pigtoe	<i>Fusconaia flava</i>	N	U	D	S3	N5
Ozark pigtoe	<i>Fusconaia ozarkensis</i>	E	X		SX	N3
Plain pocketbook	<i>Lampsilis cardium</i>	N	C	D	S3	N5
Higgins' eye pearlymussel	<i>Lampsilis higginsii</i>	E	R	D	S1	N1
Fatmucket	<i>Lampsilis siliquoidea</i>	N	C	D	S3	N5
Yellow sandshell	<i>Lampsilis teres anodontoides</i>	E	R	D	S1	N5
Slough sandshell	<i>Lampsilis teres teres</i>	E	R	D	S1	N5
White heelsplitter	<i>Lasmigona camplanata</i>	N	U	D	S3	N5
Creek heelsplitter	<i>Lasmigona compressa</i>	T	R	D	S1	N5
Fluted shell	<i>Lasmigona costata</i>	N	R	D	S2	N5
Fragile papershell	<i>Leptodea fragilis</i>	N	U	D	S3	N5
Scaleshell	<i>Leptodea leptodon</i>	X	X		SX	N1

Common Name	Scientific Name	Listing	Iowa Abundance	Iowa Trend	State Rank	National Rank
Black sandshell	<i>Ligumia recta</i>	N	U	D	S3	N5
Pondmussel	<i>Ligumia subrostrata</i>	X	X		SX	N4N5
Washboard	<i>Megaloniaias nervosa</i>	N	C	D	S3	N5
Threehorn wartyback	<i>Obliquaria reflexa</i>	N	U	D	S3	N5
Hickorynut	<i>Obovaria olivaria</i>	N	U	D	S3	N4
Bullhead (Sheepnose)	<i>Plethobasus cyphus</i>	E	R	D	S1	N3
Pyramid pigtoe	<i>Pleurobema rubrum</i>	X	X		SX	N2N3
Round pigtoe	<i>Pleurobema sintoxia</i>	E	R	D	S2	N4
Pink heelsplitter	<i>Potamilus alatus</i>	N	U	D	S3	N5
Fat pocketbook	<i>Potamilus capax</i>	X	X		SX	N1
Pink papershell	<i>Potamilus ohioensis</i>	N	U	D	S3	N5
Giant floater	<i>Pyganodon grandis</i>	N	U	D	S3	N5
Winged mapleleaf	<i>Quadrula fragosa</i>	X	X		SX	N1
Monkeyface	<i>Quadrula metanevra</i>	N	U	D	S3	N4
Wartyback	<i>Quadrula nodulata</i>	N	U	D	S3	N4
Pimpleback	<i>Quadrula pustulosa</i>	N	U	D	S3	N5
Mapleleaf	<i>Quadrula quadrula</i>	N	U	D	S3	N5
Salamander mussel	<i>Simpsonaias ambigua</i>	X	X	K	SX	N3
Strange floater (Creeper, formerly Squawfoot)	<i>Strophitus undulatus</i>	T	R	D	S2	N5
Lilliput	<i>Toxolasma parvus</i>	N	R	D	S2	N5
Pistolgrip	<i>Tritogonia verrucosa</i>	E	R	D	S1	N4
Fawnsfoot	<i>Truncilla donaciformis</i>	N	R	D	S2	N5
Deertoe	<i>Truncilla truncata</i>	N	U	D	S3	N5
Pondhorn	<i>Unio merus tetralasmus</i>	N	R	K	S1	N4
Paper pondshell	<i>Utterbackia imbecillis</i>	N	R	D	S2	N5
Ellipse	<i>Venustaconcha ellipsiformis</i>	T	R	D	S1	N?
	Order: Veneroida					
	Family: Dreissenidae					
Zebra mussel	<i>Dreissena polymorpha</i>	N			SE	NE
	Family: Corbiculidae					
Asian clam	<i>Corbicula fluminea</i>	N			SE	NE
	Family: Sphaeriidae					
Fingernail clams	<i>Spp.</i>	N			S?	

APPENDIX 9. List of Iowa butterflies considered by the IWAP.

Iowa Abundance: C = common, LC = locally common, U = uncommon, R = rare.

Iowa Trend: K = unknown, S = stable, D = decreasing,

See Appendix 11 definitions of NatureServe Iowa and National Status rankings.

Taxonomic order derived from the North American Butterfly Association's Checklist of North American Butterflies Occurring North of Mexico, which can be accessed at:

<http://www.naba.org/pubs/enames2.html>

Common Name	Scientific Name	Iowa Abundance	Iowa Trend	Iowa Rank	National Rank
Swallowtails: Family Papilionidae					
Swallowtails: Subfamily Papilioninae					
Pipevine Swallowtail	<i>Battus philenor</i>	U	K	S3 Special Concern	N5
Zebra Swallowtail	<i>Eurytides marcellus</i>	U	K	S1 Special Concern	N5
Black Swallowtail	<i>Papilio polyxenes</i>	C	S	S5	N5
Giant Swallowtail	<i>Papilio cresphontes</i>	U	K	S4	N5
Eastern Tiger Swallowtail	<i>Papilio glaucus</i>	C	S	S5	N5
Spicebush Swallowtail	<i>Papilio troilus</i>	U	K	SNR	N5
Whites and Sulphurs: Family Pieridae					
Whites: Subfamily Pierinae					
Checkered White	<i>Pontia protodice</i>	C	K	S4	N4
Cabbage White	<i>Pieris rapae</i>	C	S	SNA	N5
Olympia Marble	<i>Euchloe olympia</i>	U	K	S3, Special Concern	N4
Sulphurs: Subfamily Coliadinae					
Clouded Sulphur	<i>Colias philodice</i>	C	K	S5	N5
Orange Sulphur	<i>Colias eurytheme</i>	C	K	S5	N5
Southern Dogface	<i>Zerene cesonia</i>	LC	K	SNA	N5
Cloudless Sulphur	<i>Phoebis sennae</i>	LC	K	SNA	N5
Little Yellow	<i>Eurema lisa</i>	LC	K	SNR	N5
Sleepy Orange	<i>Eurema nicippe</i>	U	K	SNR	N5
Dainty Sulphur	<i>Nathalis iole</i>	LC	K	SNR	N5
Gossamer-wings: Family Lycaenidae					
Harvesters: Subfamily Miletinae					
Harvester	<i>Feniseca tarquinius</i>	U	K	S2	N4
Coppers: Subfamily Lycaeninae					
American Copper	<i>Lycaena phlaeas</i>	U	K	S4	N5
Gray Copper	<i>Lycaena dione</i>	LC	K	S4	N5
Bronze Copper	<i>Lycaena hyllus</i>	C	K	S5	N5
Purplish Copper	<i>Lycaena helloides</i>	U	K	S3, Special Concern	N5

Common Name	Scientific Name	Iowa Abundance	Iowa Trend	Iowa Rank	National Rank
Hairstreaks: Subfamily Theclinae					
Coral Hairstreak	<i>Satyrrium titus</i>	C	K	S4	N5
Acadian Hairstreak	<i>Satyrrium acadica</i>	LC	K	S3 Special Concern	N5
Edward's Hairstreak	<i>Satyrrium edwardsii</i>	U	K	S3 Special Concern	N5
Banded Hairstreak	<i>Satyrrium calanus</i>	LC	K	S3	N5
Hickory Hairstreak	<i>Satyrrium caryaevorum</i>	R	K	S3 Special Concern	N4
Striped Hairstreak	<i>Satyrrium liparops</i>	U	K	S3 Special Concern	N5
Henry's Elfin	<i>Callophrys henrici</i>	LC	K	S4	N4
Juniper Hairstreak	<i>Callophrys gryneus</i>	LC	K	S4	N5
White M Hairstreak	<i>Parrhasius m-album</i>	R	K	SNR	N5
Gray Hairstreak	<i>Strymon melinus</i>	C	K	S4	N5
Blues: Subfamily Polyommatainae					
Marine Blue	<i>Leptotes marina</i>	R	K	SNA	N5
Reakirt's Blue	<i>Hemiargus isola</i>	C	K	SNR	N5
Eastern-tailed Blue	<i>Everes comyntas</i>	C	K	S5	N5
Summer Azure	<i>Celastrina neglecta</i>	C	K	SNR	N5
Silvery Blue	<i>Glaucopsyche lygdamus</i>	R	K	S3 Threatened	N3
Melissa Blue	<i>Lycaeides melissa</i>	LC	K	S3	N5
Greenish Blue	<i>Plebeius saepiolus</i>	R	K	SNR	N5
Metalmarks: Family Riodinidae					
Swamp Metalmark	<i>Calephelis mutica</i>	R	K	SH	N3
Brushfoots: Family Nymphalidae					
Snouts: Subfamily Libytheinae					
American Snout	<i>Libytheana carinenta</i>	C	K	SNR	N5
Heliconians and Fritillaries: Subfamily Heliconiinae					
Gulf Fritillary	<i>Agraulis vanillae</i>	R	K	SNA	N5
Variegated Fritillary	<i>Euptoieta claudia</i>	LC	K	SNR	N5
Great Spangled Fritillary	<i>Speyeria cybele</i>	C	K	S4	N5
Aphrodite Fritillary	<i>Speyeria aphrodite</i>	LC	K	S4	N5
Regal Fritillary	<i>Speyeria idalia</i>	R	D	S2 Special Concern	N3
Silver-bordered Fritillary	<i>Boloria selene</i>	LC	K	S4	N5
Meadow Fritillary	<i>Boloria bellona</i>	LC	K	S4	N5
True Brushfoots: Subfamily Nymphalinae					
Gorgone Checkerspot	<i>Chlosyne gorgone</i>	LC	K	S4	N4
Silvery Checkerspot	<i>Chlosyne nycteis</i>	LC	K	S4	N5

Common Name	Scientific Name	Iowa Abundance	Iowa Trend	Iowa Rank	National Rank
Pearl Crescent	<i>Phyciodes tharos</i>	C	K	S5	N5
Tawny Crescent	<i>Phyciodes batesii</i>	R	K	SNR	N3
Baltimore Checkerspot	<i>Euphydryas phaeton</i>	R	D	S2 Threatened	NNR
Question Mark	<i>Polygonia interrogationis</i>	C	K	S5	N5
Eastern Comma	<i>Polygonia comma</i>	C	K	S5	N5
Gray Comma	<i>Polygonia progne</i>	U	K	S3	N5
Compton Tortoiseshell	<i>Nymphalis vaualbum</i>	U	K	SNR	N5
Mourning Cloak	<i>Nymphalis antiopa</i>	C	K	S4	N5
Milbert's Tortoiseshell	<i>Nymphalis milberti</i>	U	K	SNR	N5
American Lady	<i>Vanessa virginiensis</i>	C	K	S5	N5
Painted Lady	<i>Vanessa cardui</i>	C	S	S5	N5
Red Admiral	<i>Vanessa atalanta</i>	C	S	S5	N5
Common Buckeye	<i>Junonia coenia</i>	C	S	SNA	N5
Admirals and Relatives: Subfamily Limenitidinae					
Red-spotted Purple	<i>Limenitis arthemis astyanax</i>	LC	K	S4	N5
Viceroy	<i>Limenitis archippus</i>	C	K	S4	N5
Leafwings: Subfamily Charaxinae					
Goatweed Leafwing	<i>Anaea andria</i>	U	K	SNR	N5
Emperors: Subfamily Apaturinae					
Hackberry Emperor	<i>Asterocampa celtis</i>	C	K	S5	N5
Tawny Emperor	<i>Asterocampa clyton</i>	LC	K	S4	N5
Satyrs: Subfamily Satyrinae					
Northern Pearly Eye	<i>Enodia anthedon</i>	LC	K	S3	N5
Eyed Brown	<i>Satyroides eurydice</i>	LC	K	S4	N4
Little Wood Satyr	<i>Megisto cymela</i>	C	K	S4	N5
Common Ringlet	<i>Coenonympha tullia</i>	R	D	S1 Endangered	N5
Common Wood Nymph	<i>Cercyonis pegala</i>	C	K	S5	N5
Monarchs: Subfamily Danainae					
Monarch	<i>Danaus plexippus</i>	C	K	S5	N5
Queen	<i>Danaus plexippus</i>	R	K	SNR	N5
Skippers: Family Hesperiidae					
Spread-wing Skippers: Subfamily Pyrginae					
Silver-spotted Skipper	<i>Epargyreus clarus</i>	C	K	S4	N5
Hoary Edge	<i>Achalarus lyciades</i>	R	K	SNR	N5
Southern Cloudywing	<i>Thorybes bathyllus</i>	LC	K	S4	N5
Northern Cloudywing	<i>Thorybes pylades</i>	LC	K	S4	N5
Hayhurst's Scallopwing	<i>Staphylus hayhurstii</i>	?	K	SNR	N5
Dreamy Duskywing	<i>Erynnis icelus</i>	R	K	S3 Special Concern	N5
Sleepy Duskywing	<i>Erynnis brizo</i>	R	K	S3 Special Concern	N5

Common Name	Scientific Name	Iowa Abundance	Iowa Trend	Iowa Rank	National Rank
Juvenal's Duskywing	<i>Erynnis juvenalis</i>	U	K	S4	N5
Horace's Duskywing	<i>Erynnis horatius</i>	LC	K	S4	N5
Mottled Duskywing	<i>Erynnis martialis</i>	LC	K	S3	N3
Columbine Duskywing	<i>Erynnis lucilius</i>	R	K	S3 Special Concern	N4
Wild Indigo Duskywing	<i>Erynnis baptisiae</i>	U	K	S3 Special Concern	N5
Persius Duskywing	<i>Erynnis persius</i>	R	K	SNR	N5
Common Checkered-Skipper	<i>Pyrgus communis</i>	LC	K	SNR	N5
Common Sootywing	<i>Pholisora catullus</i>	C	K	S5	N5
Grass-skippers: Subfamily Hesperinae					
Least Skipper	<i>Ancyloxypha numitor</i>	C	K	S5	N5
Poweshiek Skipper	<i>Oarisma poweshiek</i>	R	D	S1 Threatened	N2
European Skipper	<i>Thymelicus lineola</i>	U	K	SNA	NA
Fiery Skipper	<i>Hylephila phyleus</i>	LC	K	SNR	N5
Uncas Skipper	<i>Hesperia uncas</i>	R	K	SNA	N4
Ottoo Skipper	<i>Hesperia ottoe</i>	U	K	S2 Special Concern	N3
Leonard's Skipper	<i>Hesperia leonardus</i>	R	K	S2 Special Concern	N4
Dakota Skipper	<i>Hesperia dacotae</i>	R	D	S1 Endangered	N2
Peck's Skipper	<i>Polites peckius</i>	LC	K	S5	N5
Tawny-edged Skipper	<i>Polites themistocles</i>	C	K	S5	N5
Crossline Skipper	<i>Polites origenes</i>	LC	K	S4	N5
Long Dash	<i>Polites mystic</i>	LC	K	S4	N5
Northern Broken-Dash	<i>Wallengrenia egeremet</i>	LC	K	S4	N5
Little Glassywing	<i>Pompeius verna</i>	LC	K	S4	N5
Sachem	<i>Atalopedes campestris</i>	LC	K	SNA	N5
Arogos Skipper	<i>Atrytone arogos</i>	R	D	S2 Special Concern	N3
Delaware Skipper	<i>Anatrytone logan</i>	LC	K	S5	N5
Byssus Skipper	<i>Problema byssus</i>	R	D	S2 Threatened	N3
Mulberry Wing	<i>Poanes massasoit</i>	R	D	S2 Threatened	N4
Hobomok Skipper	<i>Poanes hobomok</i>	C	K	S4	N5
Zabulon Skipper	<i>Poanes zabulon</i>	LC	K	S3 Special Concern	N5

Common Name	Scientific Name	Iowa Abundance	Iowa Trend	Iowa Rank	National Rank
Broad-winged Skipper	<i>Poanes viator</i>	LC	K	S3 Special Concern	N5
Dion Skipper	<i>Euphyes dion</i>	LC	K	S3 Special Concern	N4
Black Dash	<i>Euphyes conspicua</i>	LC	K	S4	N4
Two-spotted Skipper	<i>Euphyes bimacula</i>	R	K	S3 Special Concern	N4
Dun Skipper	<i>Euphyes vestris</i>	LC	K	S4	N5
Dusted Skipper	<i>Atrytonopsis hianna</i>	U	K	S3 Special Concern	N4
Pepper and Salt Skipper	<i>Amblyscirtes hegon</i>	R	K	S3 Special Concern	N5
Common Roadside-Skipper	<i>Amblyscirtes vialis</i>	LC	K	S3	N5
Eufala Skipper	<i>Lerodea eufala</i>	LC	K	SNA	N5

APPENDIX 10. List of Iowa dragonflies and damselflies considered by the IWAP.

Iowa Abundance: C = common, U = uncommon, R = rare, ER = extremely rare.
 See Appendix 11 definitions of NatureServe Iowa and National Status rankings.
 Taxonomic Order follows A Checklist of North American Odonata by Dennis R. Paulson and Sidney W. Dunkle 2011 ed. http://www.odonatacentral.org/docs/NA_Odonata_Checklist_2009.pdf

Common Name	Scientific Name	Abundance	Iowa Status	National Status
Broad-winged damselflies: Calopterygidae				
River Jewelwing	<i>Calopteryx aequabilis</i>	C	S5	N5
Ebony Jewelwing	<i>Calopteryx maculata</i>	C	S5	N5
American Rubyspot	<i>Hetaerina americana</i>	C	S5	N5
Smoky Rubyspot	<i>Hetaerina titia</i>	U	S3	N5
Spreadwings: Lestidae				
Great Spreadwing	<i>Archilestes grandis</i>	U	S3	N5
Southern Spreadwing	<i>Lestes australis</i>	U	S3	N5
Spotted Spreadwing	<i>Lestes congener</i>	R	S2	N5
Emerald Spreadwing	<i>Lestes dryas</i>	U	S3	N5
Amber-winged Spreadwing	<i>Lestes eurinus</i>	U	S3	N4
Sweetflag Spreadwing	<i>Lestes forcipatus</i>	R	S2	N5
Elegant Spreadwing	<i>Lestes inaequalis</i>	ER	S1	N5
Slender Spreadwing	<i>Lestes rectangularis</i>	C	S4	N5
Lyre-tipped Spreadwing	<i>Lestes unguiculatus</i>	C	S5	N5
Pond Damselflies: Coenagrionidae				
Eastern Red Damselfly	<i>Amphiagrion saucium</i>	U	S3	N5
Paiute Dancer	<i>Argia alberta</i>	R	S2	N4
Blue-fronted Dancer	<i>Argia apicalis</i>	C	S5	N5
Emma's Dancer	<i>Argia emma</i>	ER	S1	N5
Violet (Variable) Dancer	<i>Argia fumipennis</i>	C	S5	N5
Powdered Dancer	<i>Argia moesta</i>	U	S4	N5
Springwater Dancer	<i>Argia plana</i>	U	S3	N5
Blue-tipped Dancer	<i>Argia tibialis</i>	U	S4	N5
Prairie Bluet	<i>Coenagrion angulatum</i>	R	S2	N3?
Taiga Bluet	<i>Coenagrion resolutum</i>	U	S3	N4
River Bluet	<i>Enallagma anna</i>	C	S5	N5
Northern Bluet	<i>Enallagma annexum</i>	U	S3	N5
Rainbow Bluet	<i>Enallagma antennatum</i>	C	S5	N5
Azure Bluet	<i>Enallagma aspersum</i>	C	S5	N5
Double-striped Bluet	<i>Enallagma basidens</i>	U	S4	N5
Boreal Bluet	<i>Enallagma boreale</i>	R	S2	N5
Tule Bluet	<i>Enallagma carunculatum</i>	C	S5	N5
Familiar Bluet	<i>Enallagma civile</i>	C	S5	N5
Alkali Bluet	<i>Enallagma clausum</i>	R	S2	N5
Marsh Bluet	<i>Enallagma ebrium</i>	U	S3	N5
Stream Bluet	<i>Enallagma exsulans</i>	U	S4	N5
Skimming Bluet	<i>Enallagma geminatum</i>	C	S4	N5

Common Name	Scientific Name	Abundance	Iowa Status	National Status
Hagen's Bluet	<i>Enallagma hageni</i>	C	S5	N5
Orange Bluet	<i>Enallagma signatum</i>	C	S4	N5
Slender Bluet	<i>Enallagma traviatum</i>	U	S3	N5
Vesper Bluet	<i>Enallagma vesperum</i>	R	S2	N5
Citrine Forktail	<i>Ischnura hastata</i>	U	S3	N5
Fragile Forktail	<i>Ischnura posita</i>	U	S3	N5
Eastern Forktail	<i>Ischnura verticalis</i>	C	S5	N5
Sedge Sprite	<i>Nehalennia irene</i>	U	S3	N5
Darners: Aeshnidae				
Canada Darner	<i>Aeshna canadensis</i>	R	S2	N5
Lance-tipped Darner	<i>Aeshna constricta</i>	U	S3	N5
Variable Darner	<i>Aeshna interrupta</i>	R	S2	N5
Black-tipped Darner	<i>Aeshna tuberculifera</i>	ER	S?	N4
Shadow Darner	<i>Aeshna umbrosa</i>	C	S4	N5
Green-striped Darner	<i>Aeshna verticalis</i>	R	S2	N5
Common Green Darner	<i>Anax junius</i>	C	S5	N5
Fawn Darner	<i>Boyeria vinosa</i>	C	S4	N5
Swamp Darner	<i>Epiaeschna heros</i>	ER	S?	N5
Cyrano Darner	<i>Nasiaeschna pentacantha</i>	R	S2	N5
Blue-eyed Darner	<i>Rhionaeschna multicolor</i>	R	S2	N5
Spatterdock Darner	<i>Rhionaeschna mutata</i>	ER	S?	G3G4
Clubtails: Gomphidae				
Horned Clubtail	<i>Arigomphus cornutus</i>	U	S3	N4
Jade Clubtail	<i>Arigomphus submedianus</i>	C	S4	N5
Flag-tailed Spinyleg	<i>Dromogomphus spoliatus</i>	U	S3	N4N5
Plains Clubtail	<i>Gomphus externus</i>	C	S4	N5
Midland Clubtail	<i>Gomphus fraternus</i>	U	S3	N5
Pronghorn Clubtail	<i>Gomphus graslinellus</i>	U	S3	N5
Sulphur-tipped Clubtail	<i>Gomphus militaris</i>	ER	S1	N5
Rapids Clubtail	<i>Gomphus quadricolor</i>	ER	S1	N3N4
Cobra Clubtail	<i>Gomphus vastus</i>	U	S3	N5
Rusty Snaketail	<i>Ophiogomphus rupinsulensis</i>	ER	S1	N5
Sioux Snaketail	<i>Ophiogomphus smithi</i>	ER	S1	not recorded
Common Sanddragon	<i>Progomphus obscurus</i>	C	S4	N5
Riverine Clubtail	<i>Stylurus amnicola</i>	U	S3	N4
Brimstone Clubtail	<i>Stylurus intricatus</i>	ER	S1	N4
Elusive Clubtail	<i>Stylurus notatus</i>	U	S3	N3
Russet-tipped Clubtail	<i>Stylurus plagiatus</i>	U	S3	N5
Arrow Clubtail	<i>Stylurus spiniceps</i>	ER	S?	N4
Cruisers: Macromidae				
Swift (Illinois) River Cruiser	<i>Macromia illinoiensis</i>	U	S3	N5
Royal River Cruiser	<i>Macromia taeniolata</i>	R	S2	N5
Emeralds: Corduliidae				
Common Baskettail	<i>Epitheca cynosura</i>	C	S4	N5
Prince Baskettail	<i>Epitheca princeps</i>	C	S4	N5

Common Name	Scientific Name	Abundance	Iowa Status	National Status
Smoky Shadowdragon	<i>Neurocordulia molesta</i>	R	S2	N4
Stygian Shadowdragon	<i>Neurocordulia yamaskanensis</i>	ER	S1	S5
Plains Emerald	<i>Somatochlora ensigera</i>	U	S3	N3N4
Mocha Emerald	<i>Somatochlora linearis</i>	ER	S1	N5
Skimmers: Libellulidae				
Calico Pennant	<i>Celithemis elisa</i>	U	S3	N5
Halloween Pennant	<i>Celithemis eponina</i>	C	S4	N5
Eastern Pondhawk	<i>Erythemis simplicicollis</i>	C	S5	N5
Dot-tailed Whiteface	<i>Leucorrhinia intacta</i>	C	S4	N5
Spangled Skimmer	<i>Libellula cyanea</i>	R	S1	N5
Slaty Skimmer	<i>Libellula incesta</i>	ER	S1	N5
Widow Skimmer	<i>Libellula luctuosa</i>	C	S5	N5
Twelve-spotted Skimmer	<i>Libellula pulchella</i>	C	S5	N5
Four-spotted Skimmer	<i>Libellula quadrimaculata</i>	R	S2	N5
Blue Dasher	<i>Pachydiplax longipennis</i>	C	S5	N5
Wandering Glider	<i>Pantala flavescens</i>	C	S4	N5
Spot-winged Glider	<i>Pantala hymenaea</i>	U	S3	N5
Eastern Amberwing	<i>Perithemis tenera</i>	C	S5	N5
Common Whitetail	<i>Plathemis lydia</i>	C	S5	N5
Blue-faced Meadowhawk	<i>Sympetrum ambiguum</i>	ER	S1	N5
Variegated Meadowhawk	<i>Sympetrum corruptum</i>	C	S5	N5
Saffron-winged Meadowhawk	<i>Sympetrum costiferum</i>	U	S3	N5
Black Meadowhawk	<i>Sympetrum danae</i>	ER	S?	N5
Cherry-faced Meadowhawk	<i>Sympetrum internum</i>	U	S4	N5
White-faced Meadowhawk	<i>Sympetrum obtrusum</i>	C	S5	N5
Ruby Meadowhawk	<i>Sympetrum rubicundulum</i>	C	S5	N5
Band-winged (Western) Meadowhawk	<i>Sympetrum semicinctum</i> (sub species = occidentale)	U	S4	N5
Autumn Meadowhawk	<i>Sympetrum vicinum</i>	U	S3	N5
Carolina Saddlebags	<i>Tamea carolina</i>	ER	S1	N5
Black Saddlebags	<i>Tamea lacerata</i>	C	S5	N5
Red Saddlebags	<i>Tamea onusta</i>	C	S5	N5

APPENDIX 11. NatureServe National and Subnational (State) Heritage Status Rank Definitions.

(From www.natureserve.org/explorer/ranking.htm accessed June 23, 2005.)

Bird listings: B = Breeding, N = Non-breeding.

C = captive, extant only in captivity or as a reintroduced population not yet established.

? = Inexact numeric rank.

Status	Definition
NX SX	Presumed Extirpated —Species or community is believed to be extirpated from the nation or state/province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
NH SH	Possibly Extirpated (Historical)—Species or community occurred historically in the nation or state/province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could become NH or SH without such a 20-40 year delay if the only known occurrences in a nation or state/province were destroyed or if it had been extensively and unsuccessfully looked for. The NH or SH rank is reserved for species or communities for which some effort has been made to relocate occurrences, rather than simply using this status for all elements not known from verified extant occurrences.
N1 S1	Critically Imperiled —Critically imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.
N2 S2	Imperiled —Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.
N3 S3	Vulnerable —Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
N4 S4	Apparently Secure —Uncommon but not rare; some cause for long-term concern due to declines or other factors.
N5 S5	Secure —Common, widespread, and abundant in the nation or state/province.

NNR SNR	Unranked —Nation or state/province conservation status not yet assessed.
NU SU	Unrankable —Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
NNA SNA	Not Applicable —A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
N#N# S#S#	Range Rank —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
Not Provided	Species is known to occur in this nation or state/province. Contact the relevant natural heritage program for assigned conservation status.

APPENDIX 12. Iowa animal Endangered, Threatened, or Species of Special Concern (from Iowa Code Chapter 77 – Updated in 2011).

Endangered animal species:

Mammals

Indiana Bat
Plains Pocket Mouse
Red-backed Vole
Spotted Skunk

Myotis sodalis
Perognathus flavescens
Clethrionomys gapperi
Spilogale putorius

Birds

Red-shouldered Hawk
Northern Harrier
Piping Plover
Common Barn Owl
Least Tern
King Rail
Short-eared Owl

Buteo lineatus
Circus cyaneus
Charadrius melodus
Tyto alba
Sterna antillarum
Rallus elegans
Asio flammeus

Fish

Lake Sturgeon
Pallid Sturgeon
Pugnose Shiner
Weed Shiner
Pearl Dace
Freckled Madtom
Bluntnose Darter
Least Darter

Acipenser fulvescens
Scaphirhynchus albus
Notropis anogenus
Notropis texanus
Semotilus margarita
Noturus nocturnus
Etheostoma chlorosomum
Etheostoma microperca

Reptiles

Yellow Mud Turtle
Wood Turtle
Great Plains Skink
Copperbelly Water Snake
Western Hognose Snake
Copperhead
Prairie Rattlesnake
Massasauga Rattlesnake

Kinosternon flavescens
Clemmys insculpta
Eumeces obsoletus
Nerodia erythrogaster neglecta
Heterodon nasicus
Agkistrodon contortrix
Crotalus viridis
Sistrurus catenatus

Amphibians

Blue-spotted Salamander
Crawfish Frog

Ambystoma laterale
Lithobates (*Rana*) *areolata*

Butterflies

Dakota Skipper
Ringlet

Hesperia dacotae
Coenonympha tullia

Land Snails

Iowa Pleistocene Snail
Minnesota Pleistocene Ambersnail
Iowa Pleistocene Ambersnail
Frigid Ambersnail
Briarton Pleistocene Vertigo
Bluff Vertigo
Iowa Pleistocene Vertigo

Discus macclintocki
Novisuccinea new species A
Novisuccinea new species B
Catinella gelida
Vertigo briarensis
Vertigo meramecensis
Vertigo new species

Fresh Water Mussels

Spectacle Case
Slippershell
Buckhorn
Ozark Pigtoe
Bullhead
Ohio River Pigtoe
Slough Sandshell
Yellow Sandshell
Higgin's-eye Pearly Mussel

Cumberlandia monodonta
Alasmidonta viridis
Tritogonia verrucosa
Fusconaia ozarkensis
Plethobasus cyphus
Pleurobema sintoxia
Lampsilis teres teres
Lampsilis teres anodontoides
Lampsilis higginsii

Threatened animal species:**Mammals**

Least Shrew
Southern Bog Lemming

Cryptotis parva
Synaptomys cooperi

Birds

Long-eared Owl
Henslow's Sparrow

Asio otus
Ammodramus henslowii

Fish

Chestnut Lamprey
American Brook Lamprey
Grass Pickerel
Blacknose Shiner
Topeka Shiner
Western Sand Darter
Black Redhorse
Burbot
Orangethroat Darter

Ichthyomyzon castaneus
Lampetra appendix
Esox americanus
Notropis heterolepis
Notropis topeka
Ammocrypta clara
Moxostoma duquesnei
Lota lota
Etheostoma spectabile

Reptiles

Slender Glass Lizard
Common Musk Turtle
Blanding's Turtle
Ornate Box Turtle
Diamondback Water Snake
Western Worm Snake
Speckled Kingsnake

Ophisaurus attenuatus
Sternotherus odoratus
Emydoidea blandingii
Terrapene ornata
Nerodia rhombifer
Carphophis amoenus vermis
Lampropeltis getula holbrooki

Amphibians

Mudpuppy
Central Newt

Necturus maculosus
Notophthalmus viridescens

Butterflies

Poweshiek Skipperling
Byssus Skipper
Mulberry Wing
Silvery Blue
Baltimore Checkerspot

Oarisma poweshiek
Problema byssus
Poanes massasoit
Glaucopsyche lygdamus
Euphydryas phaeton

Snails

Midwest Pleistocene
Occult Vertigo

Vertigo Vertigo hubrichti
Vertigo occulta

Fresh Water Mussels

Cylinder
Strange Floater
Creek Heelsplitter
Purple Pimpleback
Butterfly
Ellipse

Anodontoides ferussacianus
Strophitus undulatus
Lasmigona compressa
Cyclonaias tuberculata
Ellipsaria lineolata
Venustaconcha ellipsiformis

Special concern animal species:**Mammals**

Southern Flying Squirrel

Glaucomys volans

Birds

Forster's Tern
Black Tern
Peregrine Falcon
Bald Eagle

Sterna forsteri
Chlidonias niger
Falco peregrinus
Haliaeetus leucocephalus

Fish

Pugnose Minnow
Pirate Perch

Notropis emiliae
Aphredoderus sayanus

Reptiles

Smooth Green Snake
Bullsnake

Opheodrys vernalis
Pituophis catenifer sayi

Butterflies

Dreamy Duskywing
Sleepy Duskywing
Columbine Duskywing
Wild Indigo Duskywing
Ottoe Skipper
Leonardus Skipper
Pawnee Skipper
Beardgrass (Arogos) Skipper
Zabulon Skipper
Broad-winged Skipper
Sedge (Dion) Skipper
Two-spotted Skipper
Dusted Skipper
Salt-and-pepper Skipper
Pipevine Swallowtail
Zebra Swallowtail
Olympia White
Purplish Copper
Acadian Hairstreak
Edward's Hairstreak
Hickory Hairstreak
Striped Hairstreak
Swamp Metalmark
Regal Fritillary
Baltimore Checkerspot

Erynnis icelus
Erynnis brizo
Erynnis lucilius
Erynnis baptisiae
Hesperia ottoe
Hesperia l. leonardus
Hesperia leonardus pawnee
Atrytone arogos
Poanes zabulon
Poanes viator
Euphyes dion
Skipper Euphyes bimacula
Atrytonopsis hianna
Skipper Amblyscirtes hegon
Battus philenor
Eurytides marcellus
Euchloe olympia
Lycaena helloides
Satyrium acadicum
Satyrium edwardsii
Satyrium caryaevorum
Satyrium liparops
Calephelis mutica
Speyeria idalia
Euphydryas phaeton ozarkae

APPENDIX 13. Terrestrial Habitat Classes Used In the IWAP.

The nine habitat classes defined by Iowa GAP were used in the IWAP. Habitat classes are made up of related vegetation alliances that can be identified from aerial photographs, have been entered into a Geographical Information System (GIS) data-bases and can be mapped.

13-1. FOREST (Map13-1): Generally, >60% canopy of tree species with crowns interlocking

Name	Description	Alliance
Pine Forest	Round-crowned temperate or subpolar needle-leaved evergreen forest.	<i>Pinus strobus</i>
Eastern Red Cedar	Conical-crowned temperate or subpolar needle-leaved evergreen forest.	<i>Juniperus virginiana</i>
Evergreen	Round-crowned and conical-crowned evergreen forest.	Not listed
Upland Deciduous	(1) Lowland or submontane cold-deciduous forest. (2) (<i>Quercus rubra</i> - <i>Acer saccharum</i> - (<i>Quercus</i> spp.)	(1) (<i>Acer saccharus</i> (<i>A. nigrus</i>) - <i>Tilia americana</i> - (<i>Quercus rubra</i> (3) (<i>Fraxinus pennsylvanica</i> - <i>Ulmus americana</i> - (<i>Juglans nigra</i> - <i>Celtis occidentalis</i> - <i>Robinia pseudoacacia</i> - <i>Acer negundo</i> - <i>Populus</i> spp.) (4) <i>Quercus alba</i> (<i>Quercus rubra</i> , <i>Carya</i> spp.) (5) <i>Quercus macrocarpa</i> (6) <i>Quercus muehlenbergii</i> (7) <i>Quercus velutina</i> - (<i>Quercus ellipsoidalis</i>) (8) (<i>Quercus imbricaria</i> <i>Populus tremuloides</i> (<i>Populus grandidentata</i>) (2) Montane or boreal cold-deciduous forest.
Mixed Evergreen/	Mixed needle-leaved evergreen -	. (1) <i>Pinus strobus</i> - <i>Quercus</i> spp)

Deciduous	cold-deciduous forest	(2) <i>Juniperus virginiana</i> - <i>Quercus</i> spp.
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13-2: WET - FOREST/WOODLAND (Map 13-2): Temporarily or seasonally flooded forest or woodland

Name	Description	Alliance
Temporarily Flooded Forested Wetland	Temporarily flooded cold-deciduous forest.	(1) <i>Acer saccharinum</i> (2) <i>Acer negundo</i> - (<i>Gleditsia triacanthos</i> - <i>Crataegus</i> spp.) (3) <i>Betula nigra</i> - (<i>Platanus occidentalis</i>) (4) <i>Populus deltoides</i> (5) <i>Salix nigra</i> (<i>S. amygdaloides</i>) (6) <i>Fraxinus macrocarpa</i> - <i>Quercus bicolor</i> - (<i>Carya laciniosa</i>)
Seasonally Flooded Forested Wetland	Seasonally flooded cold-deciduous forest.	<i>Quercus palustris</i> - (<i>Quercus bicolor</i>)
Temporarily Flooded Deciduous Woodland	Temporarily flooded cold-deciduous woodland.	<i>Populus deltoides</i>

13-3: WOODLAND (Map 13-3): Open stands of tree species with 25-60% canopy cover

Name	Description	Alliance
Eastern Red Cedar Woodland	Conical-crowned temperate or subpolar needle-leaved evergreen woodland.	<i>Juniperus virginiana</i>
Upland Deciduous Woodland	Cold-deciduous woodland.	(1) <i>Quercus macrocarpa</i> - <i>Quercus alba</i> , <i>velutina</i> (2) <i>Quercus macrocarpa</i> (3) <i>Quercus muehlenbergii</i>
Mixed Evergreen/	Mixed needle-leaved evergreen -.	<i>Juniperus virginiana</i>

Deciduous Woodland Cold-deciduous woodland

13-4, SHRUBLAND (Map 4-4): Generally shrubs >0.5 m tall forming >25% cover with <25% tree cover

Name	Description	Alliance
Upland Shrub	Temperate cold-deciduous shrubland	<i>Cornus spp.</i> - <i>Rhus spp.</i> - (<i>Symphoricarpos spp.</i>)

13-5. WET SHRUBLAND (Map 4-5): Temporarily, seasonally, semi-permanently flooded or saturated shrubland

Name	Description	Alliance
Temporarily Flooded Shrubland	Temporarily flooded shrubland	<i>Salix exigua</i> (= <i>S. interior</i>)
Seasonally Flooded Shrub	Seasonally flooded cold-deciduous shrubland.	(1) <i>Alnus incana</i> (2) <i>Cornus spp.</i> - <i>Salix spp.</i>
Semi-permanently Flooded Shrub	Semi-permanently flooded cold-deciduous shrubland	<i>Cephalanthus occidentalis</i>
Saturated (Bog or Swamp) Shrub	Saturated cold-deciduous shrubland.	<i>Betula pumila</i> - (<i>Salix spp.</i>)

13-6: WARM SEASON HERBACEOUS VEGETATION (Map 13-6): <25% canopy cover made up of trees or shrub species. Herbs form at least 25% of canopy cover.)

Name	Description	Alliance
Warm Season Grass /Perennial Forb)	Tall sod temperate grassland.	1) <i>Andropogon gerardii</i> - (<i>Panicum virgatum</i> (<i>Sorghastrum nutan</i>) (2) <i>Andropogon gerardii</i> - (3) <i>Andropogon gerardii</i> - <i>Schizachyrium scopariu</i>

13-7. HERBACEOUS WETLANDS (Map 4-7): Temporarily, seasonally, semi-permanently, permanently flooded and saturated herbaceous wetlands

Name	Description	Alliance
Temporarily Flooded Wetland	Temporarily flooded temperate or subpolar grassland. Sorghastrum nutans	(1) <i>Andropogon gerardii</i> - (<i>Calamagrostis canadensis</i> -, (2) <i>Carex lanuginosa</i> (3) <i>Spartina pectinata</i>
Seasonally Flooded Wetland	Seasonally flooded temperate or subpolar grassland.	(1) <i>Calamagrostis canadensis</i> (2) <i>Carex atherodes</i> (<i>Carex vesicaria</i>) (3) <i>Carex lacustris</i> (4) <i>Carex</i> (<i>rostrata</i> , <i>utriculata</i>) (5) <i>Carex stricta</i> (<i>Carex haydenii</i>) (6) <i>Phalaris arundinacea</i> (7) <i>Scirpus fluviatilis</i> (8) <i>Typha</i> spp. (<i>Scirpus</i> spp. - <i>Juncus</i> spp.)
Semi-permanently Flooded Wetland	Semi-permanently flooded temperate or. subpolar grassland	(1) <i>Phragmites australis</i> (2) <i>Sagittaria latifolia</i> (<i>S. rigida</i>) (3) <i>Scirpus acutus</i> (<i>S. fluviatilis</i> , <i>tabernaemontani</i>) (4) <i>Typha</i> (<i>angustifolia</i> , <i>latifolia</i>) - (<i>Scirpus</i> spp.) (5) <i>Zizania</i> (<i>aquatica</i> , <i>palustris</i>)
Saturated Wetland	Saturated temperate or subpolar grassland.	(1) <i>Carex lanuginosa</i> - <i>Scirpus</i> spp. (2) <i>Carex stricta</i> (3) <i>Carex lasiocarpa</i> (<i>Spagnum</i> spp.) (4) <i>Carex</i> spp. - <i>Typha</i> spp. (5) <i>Carex</i> spp. - <i>Rhynchospora capillacea</i>

Permanently Flooded Wetland Permanently flooded temperate or subpolar hydromorphic rooted vegetation.

- (1) *Nuphar lutea* - *Nymphaea odorata*
- (2) *Potamogeton* spp. - *Ceratophyllum* spp. - (*Myriophyllum* spp. - *Elodea* spp)
- (3) *Rupia maritima*
- (4) *Vallisneria spiralis*

13-8. SAVANNA (Map 4-8): Temperate grassland with sparse coniferous or cold-deciduous tree layer

Name	Description	Alliance
Grassland with sparse shrubs and trees	Tall and medium-tall temperate grassland with sparse. coniferous or mixed tree layer	<ul style="list-style-type: none"> (1) <i>Juniperus virginiana</i> (2) <i>Populus deltoides</i> (3) <i>Quercus macrocarpa</i> - (<i>Quercus alba</i>) (4) <i>Quercus velutina</i> - (<i>Quercus ellipsoidalis</i>) (5) <i>Schizachyrium scoparium</i> - <i>Bouteloua curtipendula</i> (<i>Juniperus virginiana</i> - <i>Quercus</i> spp.)

13-9. AGRICULTURAL LANDS (Map13-9):(Lands normally worked to produce a crop or grazed by livestock

Name	Description	Alliance
Cool Season Grassland	Cool season grassland (smooth brome, forage crops, pasture	
Cropland	Worked land normally on an annual basis in corn, soybeans, sorghum, fallow fields or other crops.	

APPENDIX 14. HABITAT PREFERENCES FOR SPECIES COVERED BY THE IWAP

14-1. Terrestrial Wildlife

Table 14-1. Habitat preferences of SGCN - Breeding Birds

Habitat Class: 1 = Forest, 2 = Wet Forest/Woodland, 3 = Woodland, 4 = Shrubland, 5 = Wet Shrubland, 6 = Warm Season Herbaceous, 7 = Herbaceous Wetland, 8 = savanna, 9 = Agricultural Land

Common Name	Scientific Name	Iowa Distribution	Habitat Class	Habitat Preference
Trumpeter swan	<i>Cygnus buccinator</i>	Statewide*	7	wetland
Northern pintail	<i>Anas acuta</i>	N 1/2	6,7,9	wetland, grassland
Canvasback	<i>Aythya valisineria</i>	NW, N central	7	wetland
Redhead	<i>Aythya americana</i>	NW, N Central	7	wetland
Northern bobwhite	<i>Colinus virginianus</i>	S 3/4	4,6,9	grassland, shrubland
Ruffed grouse	<i>Bonasa umbellus</i>	NE, SE, S Central	1,3	dense forest, open woodland
Sharp-tailed grouse	<i>Tympanuchus phasianellus</i>	W*	4,6, 9	grassland, shrubland
Greater prairie-chicken	<i>Tympanuchus cupido</i>	SW*, S Central	6, 9	grassland
American bittern	<i>Botaurus lentiginosus</i>	N 2/3	7	wetland
Least bittern	<i>Ixobrychus exilis</i>	Statewide	7	wetland
Black-crowned night-heron	<i>Nycticorax nycticorax</i>	N 2/3	5,7	wetland, wet shrubland
Yellow-crowned night-heron	<i>Nyctanassa violacea</i>	E 1/3	2,7	wetland, riparian forest
Osprey	<i>Pandion haliaetus</i>	NW*, E 1/2	2,7	wetland, riparian forest
Bald eagle	<i>Haliaeetus leucocephalus</i>	Statewide	1,2	riparian forest, deciduous forest
Northern harrier	<i>Circus cyaneus</i>	Statewide	6,7,9	grassland, marsh
Red-shouldered hawk	<i>Buteo lineatus</i>	E 3/4	1,3	riparian forest
Broad-winged hawk	<i>Buteo platypterus</i>	Statewide	1	deciduous forest
Swainson's hawk	<i>Buteo swainsoni</i>	Statewide except SE	3,8	savanna, open woodland
Peregrine falcon	<i>Falco peregrinus</i>	E 1/2*	1, 2	riparian forest, deciduous forest
King rail	<i>Rallus elegans</i>	E, N Central	7	wetland
Common moorhen	<i>Gallinula chloropus</i>	N, E, W	7	wetland

Common Name	Scientific Name	Iowa Distribution	Habitat Class	Habitat Preference
Sandhill crane	<i>Grus canadensis</i>	E 1/2	6,7,9	wetland, grassland
Piping plover	<i>Charadrius melodus</i>	Missouri River	7	wetland
Upland sandpiper	<i>Bartramia longicauda</i>	Statewide	6,9	grassland
American woodcock	<i>Scolopax minor</i>	Statewide	1,2,3	deciduous forest, open woodland, riparian forest
Wilson's phalarope	<i>Phalaropus tricolor</i>	N 1/2	6,7,9	wetland, grassland
Least tern	<i>Sterna antillarum</i>	Missouri River	7	wetland
Black tern	<i>Chlidonias niger</i>	Statewide	7	wetland
Forster's tern	<i>Sterna forsteri</i>	N Central, central, E	7	wetland
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	Statewide	1,3,4	deciduous forest, shrubland, open woodland
Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>	Statewide	1,2,3,4	riparian and deciduous forest, open woodland, shrubland
Barn owl	<i>Tyto alba</i>	Statewide*	8	savanna
Burrowing owl	<i>Athene cunicularia</i>	NW, N Central	6,9	grassland
Long-eared owl	<i>Asio otus</i>	Statewide	2,3,8	open woodland, savanna, deciduous forest
Short-eared owl	<i>Asio flammeus</i>	Statewide	6,9	grassland
Common nighthawk	<i>Chordeiles minor</i>	Statewide	6,8,9	grassland, savanna
Whip-poor-will	<i>Caprimulgus vociferus</i>	Statewide	1,3	deciduous forest, open woodland
Chimney swift	<i>Chaetura pelagica</i>	Statewide		
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>	Statewide	2,3,8	savanna, open woodland, deciduous forest
Acadian flycatcher	<i>Empidonax virescens</i>	E, S, Central	1,2	deciduous forest, riparian forest
Willow flycatcher	<i>Empidonax traillii</i>	Statewide	5	wet shrubland
Least flycatcher	<i>Empidonax minimus</i>	NE	1,3	deciduous forest, open woodland
Loggerhead shrike	<i>Lanius ludovicianus</i>	SW 2/3	4,8	savanna, shrubland
White-eyed vireo	<i>Vireo griseus</i>	Statewide	3,4	open woodland, shrubland

Common Name	Scientific Name	Distribution	Habitat Class	Habitat Preference
Bell's vireo	<i>Vireo bellii</i>	Statewide	4,5,8	shrubland, savanna
Brown creeper	<i>Certhia americana</i>	NE	1,2	deciduous and riparian forest
Bewick's wren	<i>Thryomanes bewickii</i>	SE	3,4	open woodland, shrubland
Sedge wren	<i>Cistothorus platensis</i>	Statewide	6,7,9	grassland, wetland
Veery	<i>Catharus fuscescens</i>	E 3/4	1,2	riparian forest, deciduous forest
Wood thrush	<i>Hylocichla mustelina</i>	Statewide	1,2	deciduous forest, riparian forest
Northern mockingbird	<i>Mimus polyglottos</i>	S 3/4	3,4,8	open woodland, savanna, shrubland
Blue-winged warbler	<i>Vermivora pinus</i>	E 2/3	1,3,4	deciduous forest, shrubland
Cerulean warbler	<i>Dendroica cerulea</i>	E, S, W Central	1,2	deciduous forest
Black-and-white warbler	<i>Mniotilta varia</i>	E,S	1	deciduous forest
Prothonotary warbler	<i>Protonotaria citrea</i>	NE 2/3	2	riparian forest
Worm-eating warbler	<i>Helmitheros vermivorus</i>	E	1	deciduous forest
Louisiana waterthrush	<i>Seiurus motacilla</i>	E,S,W Central	1,2	riparian and deciduous forest
Kentucky warbler	<i>Oporornis formosus</i>	E,S,W Central	1,2	deciduous and riparian forest
Hooded warbler	<i>Wilsonia citrina</i>	E,S,W Central	1	deciduous forest
Yellow-breasted chat	<i>Icteria virens</i>	E,S,W Central	3,4,8	open woodland, shrubland
Field sparrow	<i>Spizella pusilla</i>	Statewide	4,6,9	shrubland, grassland
Grasshopper sparrow	<i>Ammodramus savannarum</i>	Statewide	6,9	grassland
Henslow's sparrow	<i>Ammodramus henslowii</i>	S 1/4	6,9	grassland
Dickcissel	<i>Spiza americana</i>	Statewide	6,9	grassland
Bobolink	<i>Dolichonyx oryzivorus</i>	Statewide	6,9	grassland
Eastern meadowlark	<i>Sturnella magna</i>	Statewide	6,8,9	grassland, savanna

Table 14-2. Habitat Preferences of SGCN - Migratory Birds

Habitat Class: 1 = Forest, 2 = Wet Forest/Woodland, 3 = Woodland, 4 = Shrubland, 5 = Wet Shrubland, 6 = Warm Season Herbaceous, 7 = Herbaceous Wetland, 8 = savanna, 9 = Agricultural Land

Common Name	Scientific Name	Distribution	Habitat Class	Habitat Preference
American white pelican	<i>Pelecanus erythrorhynchos</i>	N,Central	7	wetland
Yellow rail	<i>Coturnicops noveboracensis</i>	N,E,Central	6,7,9	wetland, grassland
Whooping crane	<i>Grus americana</i>	W, NE	6,7,9	wetland, grassland
American golden-plover	<i>Pluvialis dominica</i>	Statewide	7	wetland
American avocet	<i>Recurvirostra americana</i>	Statewide	7	wetland
Solitary sandpiper	<i>Tringa solitaria</i>	Statewide	7	wetland
Greater yellowlegs	<i>Tringa melanoleuca</i>	Statewide	7	wetland
Lesser yellowlegs	<i>Tringa flavipes</i>	Statewide	7	wetland
Hudsonian godwit	<i>Limosa haemastica</i>	Statewide	7	wetland
Marbled godwit	<i>Limosa fedoa</i>	W	7	wetland
Stilt sandpiper	<i>Caladris himantopus</i>	Statewide	7	wetland
Buff-breasted sandpiper	<i>Tryngites subruficollis</i>	W	7,9	wetland, short grassland
Short-billed dowitcher	<i>Limnodromus griseus</i>	Statewide	7	wetland
Olive-sided flycatcher	<i>Contopus cooperi</i>	Statewide	1,3	coniferous forest, openings & edges
Golden-winged warbler	<i>Vermivora chrysoptera</i>	E	1,3,4	deciduous forest, open woodland shrubland
Canada warbler	<i>Wilsonia canadensis</i>	Statewide	1	deciduous forest
Le Conte's sparrow	<i>Ammodramus leconteii</i>	Statewide	6,7,9	grassland
Nelson's sparrow	<i>Ammodramus nelsoni</i>	Statewide	6,7,9	grassland, wetland
Rusty blackbird	<i>Euphagus carolinus</i>	Statewide	2,5,7	riparian forest, wetland, wet shrubland

Table 14-3. Habitat Preferences of SGCN - Mammals

Habitat Class: 1 = Forest, 2 = Wet Forest/Woodland, 3 = Woodland, 4 = Shrubland, 5 = Wet Shrubland, 6 = Warm Season Herbaceous, 7 = Herbaceous Wetland, 8 = savanna, 9 = Agricultural Land

Common Name	Scientific Name	Distribution	Habitat Class	Habitat Preference
Elliot's short-tailed shrew	<i>Blarina hylophaga</i>	extreme southwest	1,3,6,8	forest, woodland, savanna, grassland
Least shrew	<i>Cryptotis parva</i>	west	2,3,4,8, R	woodland, savanna, grassland, riparian
Hayden's shrew	<i>Sorex haydeni</i>	western one-third	1,2,3,6, R	grassland, woodland, riparian
Northern myotis	<i>Myotis septentrionalis</i>	state-wide	1	forest
Indiana bat	<i>Myotis sodalis</i>	southeast two-thirds	1	forest, upland and riparian
Evening bat	<i>Nycticeius humeralis</i>	southern half	1,2	forest, riparian
Gray fox	<i>Urocyon cinereoargenteus</i>	southern third	1,2	Forest, woodland
Bobcat	<i>Lynx rufus</i>	state-wide	1,3,4,6	forest, woodland, grassland
Spotted skunk	<i>Spilogale putorius</i>	state-wide	1,6,7	grassland, savanna, forest, and farmsteads
Franklin's ground squirrel	<i>Spermophilus franklinii</i>	state-wide	6,9	tallgrass prairie, savanna and roadsides
Red squirrel	<i>Tamiasciurus hudsonicus</i>	northeast one-fourth	1	forest
Southern flying squirrel	<i>Glaucomys volans</i>	East, south (disjunct)	1	forest
Plains pocket gopher	<i>Geomys bursarius</i>	state-wide	6,7,8,9	
Plains pocket mouse	<i>Perognathus flavescens</i>	west, disjunct in east	6	prairie, sand and loess
Red-backed vole	<i>Clethrionomys gapperi</i>	north central	1	forest
Prairie vole	<i>Microtus ochrogaster</i>	state-wide	6	upland prairie
Woodland vole	<i>Microtus pinetorum</i>	east two-thirds	1	forest
Southern bog lemming	<i>Synaptomys cooperi</i>	state-wide	7	moist grassland
White-tailed jackrabbit	<i>Lepus townsendii</i>	north-central	6,9	shortgrass prairie and pasture

Table 14-4. Habitat Preferences of SGCN - Butterflies

Habitat Class: 1 = Forest, 2 = Wet Forest/Woodland, 3 = Woodland, 4 = Shrubland, 5 = Wet Shrubland, 6 = Warm Season Herbaceous, 7 = Herbaceous Wetland, 8 = savanna, 9 = Agricultural Land

Common Name	Scientific Name	Habitat Preference	Habitat Class	Iowa Distribution
Pipevine Swallowtail	<i>Battus philenor</i>	Forest, open fields and roadsides	1,9	E 1/2
Zebra Swallowtail	<i>Eurytides marcellus</i>	Woodland along rivers	3R	S 1/2
Olympia Marble	<i>Euchloe olympia</i>	Open woods, river bluffs, poor soils and grasslands	3,6,8	W and NE
Purplish Copper	<i>Lycaena helloides</i>	Moist or disturbed areas	9	Scattered
Acadian Hairstreak	<i>Satyrium acadica</i>	Riparian & oldfield	9R	Scattered
Edward's Hairstreak	<i>Satyrium edwardsii</i>	Woodlands, clearings, and areas of poor soil	3	Scattered
Hickory Hairstreak	<i>Satyrium caryaevorum</i>	Forest	1	Scattered
Striped Hairstreak	<i>Satyrium liparops</i>	Forest openings and edges, prairie streamside	3	Scattered
White M Hairstreak	<i>Parrhasius m-album</i>	Woodland	3	Scattered w/in SE 1/2
Reakirt's Blue	<i>Echinargus (Hemiargus) isola</i>	Native prairie	6	Scattered
Silvery Blue	<i>Glaucopsyche lygdamus</i>	Open fields and woodland openings	3,9	N 1/2
Melissa Blue	<i>Plebejus (Lycaeides) melissa</i>	Xeric prairie and gravel ridges	6	Scattered
Aphrodite fritillary	<i>Speyeria aphrodite</i>	High quality prairie, wetland and fen habitat	6,7	Scattered w/in N 1/2
Regal Fritillary	<i>Speyeria idalia</i>	Prairie & open grassland	6,9	Statewide
Baltimore Checkerspot	<i>Euphydryas phaeton</i>	Wetlands	7	E 1/2
Compton Tortoiseshell	<i>Nymphalis vaualbum (l-album)</i>	Large tracts of forest	1	Scattered w/in NE 1/4
Common Ringlet	<i>Coenonympha tullia</i>	Prairie and marsh edge	6,7	NW 1/8
Hayhurst's scallopwing	<i>Staphylus hayhurstii</i>	Floodplain forests, Loess Hills forests	2,3,8	Scattered w/in S 1/2
Dreamy Duskywing	<i>Erynnis icelus</i>	Woodland or edge	3,8	Scattered
Sleepy Duskywing	<i>Erynnis brizo</i>	Oak barrens sand or shale soils	*	Scattered
Mottled duskywing	<i>Erynnis martialis</i>	Xeric prairie	6	W 1/3
Columbine Duskywing	<i>Erynnis lucilius</i>	Rocky wooded ravines	1,3	Scattered
Common Name	Scientific Name	Habitat Preference	Habitat Class	Iowa Distribution

Wild Indigo duskywing	<i>Erynnis baptisiae</i>	Roadsides, prairie	9	Scattered
Powesheik Skipperling	<i>Oarisma powesheik</i>	High quality tallgrass prairie	6	Scattered
Ottoo Skipper	<i>Hesperia ottoe</i>	Mid and tall grass prairie of high quality	6	Loess hills and NE
Leonardus Skipper	<i>Hesperia leonardus</i>	Open grassy areas	6,9	Scattered
Dakota Skipper	<i>Hesperia dacotae</i>	Prairie	6	Dickinson Co.
Arogos Skipper	<i>Atrytone arogos</i>	Prairies and grasslands	6,9	W 1/2
Byssus Skipper	<i>Problema byssus</i>	Tallgrass prairie	6	Scattered
Mulberry Wing	<i>Poanes massasoit</i>	Wetlands fens	7	Scattered
Zabulon Skipper	<i>Poanes zabulon</i>	Riparian, oldfield, and woodland edges	3,9	SE 1/4
Broad-winged Skipper	<i>Poanes viator</i>	Wetlands fens	7	N 1/2
Dion Skipper	<i>Euphyes dion</i>	Sedge wetlands	7	Scattered
Two-spotted Skipper	<i>Euphyes bimakula</i>	Sedge meadows & marshes	7	Scattered
Dusted Skipper	<i>Atrytonopsis hianna</i>	Bluestem grasslands & oldfields	6,9	Scattered
Pepper and Salt Skipper	<i>Amblyscirtes hegon</i>	Edge of woods & grass waterways	3,9	Scattered
Common roadside-skipper	<i>Amblyscirtes vialis</i>	High quality, xeric prairie	6	S 1/3, Loess Hills

Table 14-5. Habitat Preferences of SGCN - Land Snails

Habitat Class: 1 = Forest, 2 = Wet Forest/Woodland, 3 = Woodland, 4 = Shrubland, 5 = Wet Shrubland, 6 = Warm Season Herbaceous, 7 = Herbaceous Wetland, 8 = savanna, 9 = Agricultural Land

Common Name	Scientific Name	Habitat Preference	Habitat Class	Iowa Distribution
Iowa Pleistocene Snail	<i>Discus macclintocki</i>	Algific slopes	1	NE
Frigid Ambersnail	<i>Catinella gelida</i>	Algific slopes	1	NE
Minnesota Pleistocene Succinea	<i>Novasuccinea n. sp. minnesota a</i>	Moderate cliffs	1	NE
Iowa Pleistocene Succinea	<i>Novasuccinea n. sp. Minnesota b</i>	Moderate cliffs	1	NE
Briarton Pleistocene Snail	<i>Vertigo brierensis</i>	Algific slopes	1	NE
Hubricht's Vertigo	<i>Vertigo hubrichti</i>	Algific slopes	1	NE
Iowa Pleistocene Vertigo	<i>Vertigo iowaensis</i>	Algific slopes	1	NE
Bluff Vertigo	<i>Vertigo meramecensis</i>	Limestone or dolomite cliffs & outcrops	1	NE

14-2: Semi-aquatic Wildlife

Table 14-6. Habitat Preferences of SGCN - Reptiles and Amphibians

Habitat Class (terrestrial): 1 = Forest, 2 = Wet Forest/Woodland, 3 = Woodland, 4 = Shrubland, 5 = Wet Shrubland, 6 = Warm Season Herbaceous, 7 = Herbaceous Wetland, 8 = savanna, 9 = Agricultural Land
Habitat Class (aquatic): 1A = River, 2A = Stream, 3A = Creek, 4A = Impoundment, 5A = Backwater, 5B = Oxbow, 6A = Lake, 7A = Pond

Common Name	Scientific Name	Habitat Preference	Habitat Class	Distribution
Mudpuppy	<i>Necturus maculosus</i>	Clean rivers, streams, lakes, reservoirs	1A,2A,4A, 6A	E
Central Newt	<i>Notophthalmus viridescens</i>	Vegetated woodland ponds, roadside flooded ditches & adjacent habitat	2,3,7	E, SE
Tiger Salamander	<i>Ambystoma tigrinum</i>	Generalist	1,2,3,4,5,6,7 8,9, 4A, 5B, 6A, 7A	Statewide
Smallmouth Salamander	<i>Ambystoma texanum</i>	Woodland pools and open woods	2,3,7	S
Blue-spotted Salamander	<i>Ambystoma laterale</i>	Woodland pools & open woods	2,3	NE
Crawfish Frog	<i>Lithobates areolata</i>	Prairie marshes, ponds and river floodplains	2,6,7,9,7A	SE
Cricket Frog	<i>Acris crepitans</i>	Shallow wetlands and streams	1A,2A,3A,5A, 6A,7A,7	Statewide
Great Plains Toad	<i>Anaxyrus cognatus</i>	Prairie, nonnative grassland	6,9	W
Plains Spadefoot	<i>Spea bombifrons</i>	Loess Hills	6	W
Ornate Box Turtle	<i>Terrapene ornata</i>	Sand/loess prairie, savanna	6,8,9	E,SW
Blanding's Turtle	<i>Emydoidea blandingii</i>	Shallow well vegetated wetlands	5A,7A,7	E, N Central
Wood Turtle	<i>Clemmys insculpta</i>	Floodplain forest, rivers	1A,2	N,N Central
Yellow Mud Turtle	<i>Kinosternon flavescens</i>	Shallow, ephemeral pools adjacent nearly pure sand soils.	5A,6,7	SE
Common Musk Turtle	<i>Sternotherus odoratus</i>	Backwaters and spring fed ponds adjacent to sandy uplands	2A,5A,7A,7	E
Smooth Softshell Turtle	<i>Apalone mutica</i>	Boundary rivers, large rivers in southern Iowa	1A, 5A	S
Slender Glass Lizard	<i>Ophisaurus attenuatus</i>	Prairie, pastures, forest edge, savanna	3,6,8,9	S
Six-Lined Racerunner	<i>Cnemidophorus sexlineatus</i>	Sand/loess prairie, savanna	6,8,9	E,SW
Common Name	Scientific Name	Habitat Preference	Habitat	

			Class	Distribution
Northern Prairie Skink	<i>Eumeces septentrionalis</i>	Sandy/loess prairie-forest edge, wetland edge	5,6,7	W,NE
Great Plains Skink	<i>Eumeces obsoletus</i>	Rocky/loess prairie and forest edge	6	SW
Diamondback Watersnake	<i>Nerodia rhombifer</i>	Quiet pools and backwater sloughs	5A	SE
Copperbelly Watersnake	<i>Nerodia erythrogaster neglecta</i>	Backwater sloughs, Forested wetland	2,5A	SE
Smooth Earthsnake	<i>Virginia valeriae</i>	Rocky woodland	3	S
Western Wormsnake	<i>Carphophis amoenus</i>	Rocky woodlands	3	S
Smooth Green Snake	<i>Opheodrys vernalis</i>	Old field, savanna, wet prairie and marsh	5,6,7,8	E 3/4
Prairie Kingsnake	<i>Lampropeltis calligaster</i>	Woodland edge, open woodland, grassland, savanna	3,6,8,9	S
Speckled Kingsnake	<i>Lampropeltis getula holbrooki</i>	Prairie, woodland edge, savanna	3,6,8	S
Bullsnake	<i>Pituophis catenifer sayi</i>	Prairie, deciduous woodland edge, savanna	3,6,8,9	Statewide
Western Hog-nosed Snake	<i>Heterodon nasicus</i>	Sand/loess prairie	6	SE, NW
Eastern Massasauga Rattlesnake	<i>Sistrurus catenatus catenatus</i>	Early successional wetland and upland grassland	5,6,7,9	E,S
Timber Rattlesnake	<i>Crotalus horridus</i>	Forested areas near rock outcrops, woodland, hill prairie	1,3,6	E,S
Prairie Rattlesnake	<i>Crotalus viridis</i>	Prairie	6	NW
Copperhead	<i>Agkistrodon contortrix</i>	Forested, rocky hillsides	1	SE

Table 14-7. Habitat Preferences of SGCN - Dragonflies and Damselflies

Habitat Class: 1A = River, 2A = Stream, 3A = Creek, 4A = Impoundment, 5A = Backwater, 5B = Oxbow, 6A = Lake, 7A = Pond

Common Name	Scientific Name	Habitat Preference	Habitat Class	Distribution
Canada Darner	<i>Aeshna canadensis</i>	marshes, pond edges	7A,7	northeast one-fourth
Variable Darner	<i>Aeshna interrupta</i>	lakes, ponds, streams	2A,6A, 7A	northwest one-fourth
Green-striped Darner	<i>Aeshna verticalis</i>	marshes, pond edges	7A,7	east one-fourth
Blue-eyed Darner	<i>Rhionaeschna multicolor</i>	small lakes, ponds	6A,7A	west one-third
Cyrano Darner	<i>Nasiaeschna pentacantha</i>	shaded creeks, lakes, oxbows	3A,5A, 6A	southeast one-fourth
Sulphur-tipped Clubtail	<i>Gomphus militaris</i>	artificial ponds, lakes	6A,7A	south and west
Rapids Clubtail	<i>Gomphus quadricolor</i>	rocky creeks	3A	Fayette County
Brimstone Clubtail	<i>Stylurus intricatus</i>	sandy streams	2A	west one-fourth
Rusty Snaketail	<i>Ophiogomphus rupinsulensis</i>	sandy, rocky creeks	3A	northeast one-fourth
Sioux Snaketail	<i>Ophiogomphus smithi</i>	sand bottomed streams	2A	northeast one-fourth
Royal River Cruiser	<i>Macromia taeniolata</i>	lakes, rivers	1A,6A	eastern border
Smoky Shadowdragon	<i>Neurocordulia molesta</i>	large rivers	1A	statewide large rivers
Stygian Shadowdragon	<i>Neurocordulia yamaskanensis</i>	Mississippi River	1A	extreme northeast
Mocha Emerald	<i>Somatochlora linearis</i>	wooded edges	2A	Wayne and Madison Cos.
Spangled Skimmer	<i>Libellula cyanea</i>	artificial ponds, lakes	6A,7A	southern border
Slaty Skimmer	<i>Libellula incesta</i>	old river oxbow	5A	Wayne County
Four-spotted Skimmer	<i>Libellula quadrimaculata</i>	marshes, wooded ponds	7A,7	north one-half
Blue-faced Meadowhawk	<i>Sympetrum ambiguum</i>	temporary pools, oxbows	5A	southeast one-fourth
Carolina Saddlebags	<i>Tamea carolina</i>	marsh	7	Mahaska County
Spotted Spreadwing	<i>Lestes congener</i>	edges pools, marshes	5A,7	statewide
Sweetflag Spreadwing	<i>Lestes forcipatus</i>	marshes, pond edges	7A,7	northeast one-third
Elegant Spreadwing	<i>Lestes inaequalis</i>	ponds	7A	northeast corner
Paiute Dancer	<i>Argia alberta</i>	small streams, road ditches	2A	west one-third
Emma's Dancer	<i>Argia emma</i>	small streams	2A	Crawford County
Prairie Bluet	<i>Coenagrion angulatum</i>	lakes, ponds	6A,7A	west one-third
Boreal Bluet	<i>Enallagma boreale</i>	marsh	7	north one-third

Common Name	Scientific Name	Habitat Preference	Habitat Class	Distribution
Alkali Bluet	<i>Enallagma clausum</i>	Pond edges without vegetation	7A	northwest one-fourth
Vesper Bluet	<i>Enallagma vesperum</i>	deep lakes, ponds	6A,7A	southwest one-half

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14-3. Aquatic Wildlife

Table 14-8. Habitat Preferences of SGCN - Fish

Water Type: C = creek, S = stream, R = river, B = backwater, P = pond, L = lake,

I = impoundment (S = small, M = medium, L = large)

Substrate: M = muck, I = silt, S = sand, C = cobble, G = gravel, R = rock, B = bedrock

Flow: N = none, S = slow, M = moderate, F = fast

Habitat Class: 1A = River, 2A = Stream, 3A = Creek, 4A = Impoundment, 5A = Backwater, 5B = Oxbow, 6A = Lake, 7A = Pond

Common Name	Scientific Name	Iowa Distribution	Habitat Class	Water Type	Substrate	Flow
Chestnut lamprey	<i>Ichthyomyzon castaneus</i>	Miss. River Chariton River	1A	MR, LR		
Northern brook lamprey	<i>Ichthyomyzon fossor</i>	NE 1/4	3A	S	M	M, F
Silver lamprey	<i>Ichthyomyzon unicuspis</i>	Miss. River	1A,4A, 6A	L, I, LR		
American brook lamprey	<i>Lampetra appendix</i>	NE 1/4	1A,3A	C, SR, MR		
Lake sturgeon	<i>Acipenser fulvescens</i>	Miss. River	1A,6A	LR, LL	S, G, R	
Pallid sturgeon	<i>Scaphirhynchus albus</i>	Mo. River	1A	LR; turbid	G, S	F
Shovelnose sturgeon	<i>Scaphirhynchus platorynchus</i>	Miss. Mo. Rivers	1A	LR; turbid		
Paddlefish	<i>Polyodon spathula</i>	Miss. Mo. DM, Cedar, Iowa, Skunk Rivers	1A,4A, 5A	MR, LR, B, I		S
Spotted gar	<i>Lepisosteus oculatus</i>	Miss. River	1A	MR, LR		M
Longnose gar	<i>Lepisosteus osseus</i>	Miss. Mo. and larger tributaries	4A,5A, 6A	L, I, B; veg		
Bowfin	<i>Amia calva</i>	Miss. River	5A,6A	B, L		
Goldeye	<i>Hiodon alosoides</i>	Mo. large streams in W, S and SE	1A,5A, 6A	MR,LR, B,L		
American eel	<i>Anguilla rostrata</i>	Miss. Mo. and larger tributaries	2A,6A	LS, L		
Skipjack herring	<i>Alosa chrysochloris</i>	Miss. & Mo. Rivers	1A,4A	MR, LR, LI	S, G	
Largescale stoneroller	<i>Campostoma oligolepis</i>	NE 1/3	2A	MS, LS; clear	G	
Gravel chub	<i>Erimystax x-punctatus</i>	N 1/2	1A,3A	LC, R	G	
Western silvery minnow	<i>Hybognathus argyritis</i>	Mo. drainage	5A	B	S, M	
Mississippi silvery minnow	<i>Hybognathus nuchalis</i>	E Miss. drainage	5A	B		S
Plains minnow	<i>Hybognathus placitus</i>	Mo. drainage	1A,2A	S, R	I	S
Pallid shiner	<i>Hybopsis amnis</i>	Upper. Miss.	1A	MR, LR	S, M	

Common Name	Scientific Name	Iowa Distribution	Habitat Class	Water Type	Substrate	Flow
Redfin shiner	<i>Lythrurus umbratilis</i>	NE 1/4	1A,2A,3A			
Shoal chub	<i>Macrhybopsis hyostomus</i>	Large interior rivers statewide	1A	R	S, C	M, F
Sturgeon chub	<i>Macrhybopsis gelida</i>	E 1/2, Mo. River	1A	Warm, turbid		
Sicklefin chub	<i>Macrhybopsis meeki</i>	Mo. River	1A	LR; turbid	G, S	
Pearl dace	<i>Margariscus margarita</i>	Worth Co.	6A,7A	P, SL	S, G	
Pugnose shiner	<i>Notropis anogenus</i>	W. Lake Okoboji	6A	L; clear, veg	I, S, G	
Ghost shiner	<i>Notropis buchanani</i>	Miss. River	1A,3A	LC, SR, MR		S
Ironcolor shiner	<i>Notropis chalybaeus</i>	Cedar River	1A	S, R	S	S
Blackchin shiner	<i>Notropis heterodon</i>	W. Lake Okoboji	6A, 2A	L, S	S, G	
Blacknose shiner	<i>Notropis heterolepis</i>	NW	1A,3A,6A	C, SR, L; cool	S	
Spottail shiner	<i>Notropis hudsonius</i>	Natural lakes, Miss.	1A,6A	LR, L	S, R	
Ozark minnow	<i>Notropis nubilus</i>	NE 1/4	1A,3A	C, SR, MR	G, R	F
Silverband shiner	<i>Notropis shumardi</i>	Miss & Mo. (?) River	1A	LR; turbid	I, S, G	M, F
Weed shiner	<i>Notropis texanus</i>	Cedar and Miss. Rivers	1A,3A	C, SR, MR	S	
Topeka shiner	<i>Notropis topeka</i>	DM, Boone, Raccoon, Rock drainages	1A,3A, 5A	B, C, S R; clear		S
Pugnose minnow	<i>Opsopoeodus emiliae</i>	Miss. River	1A,2A, 4A	L, I, S; veg		S
Southern redbelly dace	<i>Phoxinus erythrogaster</i>	NE 1/3, NW 1/4				
Flathead chub	<i>Platygobio gracilis</i>	Mo. drainage	1A	R; turbid		
Longnose dace	<i>Rhinichthys cataractae</i>	NE corner	1A	SR, MR; clear	G, R	F
Blue sucker	<i>Cycleptus elongatus</i>	Miss. Mo. and large tributaries	1A	LR		
Black buffalo	<i>Ictiobus niger</i>	Miss. and large tributaries	1A,4A, 5A	B, R, I		
Spotted sucker	<i>Minytrema melanops</i>	Miss. River	1A	SR, MR	firm	S
River redhorse	<i>Moxostoma carinatum</i>	Upper pools of Miss.	1A,3A,	LC, R; clear		
Black redhorse	<i>Moxostoma duquesnei</i>	Turkey, Upper Iowa, Cedar, Wapsi drainages	1A,3A	C, SR, MR	G, R	
Greater redhorse	<i>Moxostoma valenciennesi</i>	Upper Miss. River	1A	MR, LR	no silt	M, F

Common Name	Scientific Name	Iowa Distribution	Habitat Class	Water Type	Substrate	Flow
Brown bullhead	<i>Ameiurus nebulosus</i>	N 1/3	2A,4A,5A,6A,7A	P, L, B, I, S		S
Blue catfish	<i>Ictalurus furcatus</i>	Lower Miss and Mo. Rivers	1A, 5A			
Slender madtom	<i>Noturus exilis</i>	Miss. River tributaries	1A,2A	MS, LS, SR, MR		M, F
Tadpole madtom	<i>Noturus gyrinus</i>	Statewide	1A,3A,4A,5A,6A	L, I, B, C, R; veg	M	S
Freckled madtom	<i>Noturus nocturnus</i>	Miss. drainage	1A,3A	C, R		L, M
Grass (redfin) pickerel	<i>Esox americanus</i>	Miss. River and tributaries	5A,6A,7A	B, P, SL; veg		S
Central mudminnow	<i>Umbra limi</i>	N 1/3	2A, 5A	S, B; veg		S
Brook Trout	<i>Salvelinus fontinalis</i>	NE corner	1A,3A	C, S, S R, cool	S, G, C, R	M, F
Trout perch	<i>Percopsis omiscomaycus</i>	NW 1/4, Miss., Grand Chariton Rivers	1A, 2A	S, R	S	
Pirate perch	<i>Aphredoderus sayanus</i>	Miss. and large tributaries	5A,6A,7A	L, P, B; veg		
Burbot	<i>Lota lota</i>	Mo. & Miss. Rivers/Miss. tributaries	1A,6A	L, L R; deep, cold		
Banded killifish	<i>Fundulus diaphanus</i>	Natural lakes in NW, Mo. River	2A,6A,7A	L, P, S		S
Starhead topminnow	<i>Fundulus dispar</i>	L. Sioux/Iowa Rivers	3A,5A,5B	C, B	M	N
Blackstripe topminnow	<i>Fundulus notatus</i>	E 1/3	2A,5A	S, B; turbid		
Plains topminnow	<i>Fundulus sciadicus</i>	Rock River Basin	5A	C, S, B		M
Mottled sculpin	<i>Cottus bairdi</i>	Lower Bear Creek	2A,3A	C, SR; clear, cool	S, G, R	
Slimy sculpin	<i>Cottus cognatus</i>	NE corner	2A	S; cold	R	F
Western sand darter	<i>Ammocrypta clara</i>	Miss. River	1A	MR, LR	S	S, M
Crystal darter	<i>Crystallaria asprella</i>	Miss., Turkey Rivers	1A	SR, MR	S, G	F
Mud darter	<i>Etheostoma asprigene</i>	Miss. River & tributaries	1A,5A	B, R	S, M	S
Bluntnose darter	<i>Etheostoma chlorosomum</i>	Miss. River	1A, 3A, 5A	SR, MR, C, B	S, M	S
Iowa darter	<i>Etheostoma exile</i>	Northern 1/2	3A, 6A, 7A	C, P, L, cool	M, S	N, S
Least darter	<i>Etheostoma microperca</i>	Maquoketa, trib. to Otter Creek	3A	C; veg		S

Common Name	Scientific Name	Iowa Distribution	Habitat Class	Water Type	Substrate	Flow
Orangethroat darter	<i>Etheostoma spectabile</i>	SE 1/4	1A,3A	C, SR	S, C, G, B	M, F
Banded darter	<i>Etheostoma zonale</i>	NE 1/4	1A,3A	R, LC	C, G	M
Northern logperch	<i>Percina caprodes</i>	Miss. drainage, Clear Lake	1A,2A,3A ,4A,6A	C, S, R, L, I	S, G	M, F
Blackside darter	<i>Percina maculata</i>	N 2/3	1A,3A	C, SR, MR	S, G	S
Slenderhead darter	<i>Percina phoxocephala</i>	Miss. drainage	1A,3A	C, SR, MR	C, G, B	M, F
River darter	<i>Percina shumardi</i>	Miss. River	1A	LR	G, R	F

Table 14-9. Habitat Preferences of SGCN - Mussels

Water: C = creek, S = stream, R = river, B = backwater, P = pond, L = lake,
I = impoundment (S = small, M = medium, L = large)

Substrate: M = muck, I = silt, S = sand, C = cobble, G = gravel, R = rock, B = bedrock

Flow: N = none, S = slow, M = moderate, F = fast

Habitat Class: 1A = River, 2A = Stream, 3A = Creek, 4A = Impoundment, 5A = Backwater,
5B = Oxbow, 6A = Lake, 7A = Pond

Common Name	Scientific Name	Iowa Distribution	Habitat Class	Water	Substrate	Flow
Elktoe	<i>Alasmodonta marginata</i>	NE 3/4	2A	MS	S, G	M
Slippershell	<i>Alasmodonta viridis</i>	E	2A,3A	C, S	S, M	
Flat floater	<i>Anodonta suborbiculata</i>	Miss. Riv.	1A,6A,7A	P, L, R	M, I	N, S
Cylinder (Cylindrical papershell)	<i>Anodontoides ferussacianus</i>	N Central	3A	SC	S, M	
Rock pocketbook	<i>Arcidens confragosus</i>	Miss. Riv.	1A	MR, LR	S, M	
Spectacle case	<i>Cumberlandia monodonta</i>	Miss. Riv.	1A	LR	S, M	F
Purple pimpleback (wartyback)	<i>Cyclonaias tuberculata</i>	SE	1A	MR, LR	G	
Butterfly	<i>Ellipsaria lineolata</i>	Miss. & Cedar Rivs.	1A	LR	S, G	
Spike	<i>Elliptio dilatata</i>	NE 3/4	2A,6A	S, L	S, G; firm	
Ebonyshell	<i>Fusconaia ebena</i>	Miss. Riv.	1A	LR; deep	S, G	
Ozark pigtoe	<i>Fusconaia ozarkensis</i>					
Higgins' eye pearlymussel	<i>Lampsilis higginsii</i>	Miss. Riv. & Tributaries	1A	LR	S, G	
Yellow sandshell	<i>Lampsilis teres anodontoides</i>	NE 2/3	1A	MR, LR	S, G	
Slough sandshell	<i>Lampsilis teres teres</i>	NE 2/3	1A,5A	R, B	M	S
Creek heelsplitter	<i>Lasmigona compressa</i>	NE 2/3	2A,3A	C, S	S, G	
Fluted shell	<i>Lasmigona costata</i>	NE 3/4	1A	MR, LR	S, G, M	
Pondmussel	<i>Ligumia subrostrata</i>	DM & Iowa Rivers	3A,7A	SC, P	S, M	
Hickorynut	<i>Obovaria olivaria</i>	Miss. Riv.	1A	LR	S, G	
Bullhead (Sheepnose)	<i>Plethobasus cyphus</i>	Miss. & DM Rivers	1A	MR, LR	S, G	
Round pigtoe	<i>Pleurobema sintoxia</i>	NE 3/4	1A,2A	S, R	S, G; firm	
Monkeyface	<i>Quadrula metanevra</i>	E 2/3	1A	MR, LR	G	
Wartyback	<i>Quadrula nodulata</i>	Miss. Riv.	1A	LR	S, G	
Strange floater (Creeper, formerly Squawfoot)	<i>Strophitus undulatus</i>	NE 3/4	2A	SS, MS	S, G, M	
Lilliput	<i>Toxolasma parvus</i>	NE 2/3	1A,3A,6A,7A	P, L, C, R	S, G, M	

Common Name	Scientific Name	Iowa Distribution	Habitat Class	Water	Substrate	Flow
Pistolgrip	<i>Tritogonia verrucosa</i>	Miss., Iowa, DM Rivers	1A	MR, LR	S,G,M	
Fawnsfoot	<i>Truncilla donaciformis</i>	E	1A	MR, LR	S, G	
Pondhorn	<i>Unio merus tetralasmus</i>	S Central	1A,2A,3A,7A	P,C,S,R	M,S	
Paper pondshell	<i>Utterbackia imbecillis</i>	NE 3/4	1A,6A,7A,4A	P, L, I, R	M	S
Ellipse	<i>Venusta concha ellipsiformis</i>	E 2/3	2A	SS, MS	S, G	